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FACTORS AFFECTING THE MORTALITY OF SMALL-BOWEL OBSTRUCTION.[1]

By CHARLES GALE, M.S., F.R.A.C.S.,
Geelong.

THE major factors affecting the mortality of small bowel obstruction are three—namely, operation, resuscitation and intubation.

In my days as a house surgeon twenty-five years ago, early operation was the treatment of choice. If used at all, intubation consisted of stomach aspiration with a syringe while one was waiting for preparation of the operating theatre and patient. Resuscitation consisted usually of the administration of one pint of blood, serum or saline, these commonly being poured from a jug into a funnel attached by ordinary rubber tubing to a needle inserted into a vein.

The operative procedures today are basically no different, but are used to better advantage—but only because of the help afforded by resuscitation and intubation, and to a much lesser degree by the modern factors available for the prevention and treatment of infection. It is probable that the surgeons are technically no better, and if anything —because the necessity for speed has largely disappeared —a little slower.

Resuscitation has advanced out of all recognition, and this is the main factor in the lowering of the mortality of obstruction. I have seen resuscitation develop from the occasional administration of a pint of blood or serum or home-made saline to the complicated procedure it is today.

The occasional pint was replaced by the continuous drip administration, this being used for prolonged periods, and blood, serum and saline being the only solutions used. However, it was not long before the dangers of excessive salt became apparent and water solutions made isotonic with dextrose were used in addition. However, with these solutions many patients were precipitated into a condition of œdema which was often fatal. It was not until the late thirties that the importance of the maintenance of a serum protein level in the prevention of œdema was generally recognized. Later still potassium metabolism entered the picture, as well as the desirability for making separate provision for sodium and chloride ions. Today, fluid electrolyte management is so complex that it warrants its own specialty, and this, though having considerable advantages, has some definite disadvantages.

At times I feel uneasy about the wide distribution of responsibility that sometimes occurs in the handling of these patients. For some years circumstances forced me to manage all aspects of the treatment of obstruction without

[1] Read at a meeting of the Victorian Branch of the British Medical Association on October 15, 1955, at Geelong.

the help of biochemist, pathologist or resuscitation officer, and this single control had many advantages. Today it can easily happen that the control becomes spread amongst surgeon, resuscitation officer, registrar, junior house surgeon and their various deputies, treatment being modified by one without reference to the others. I believe that the primary responsibility should be accepted by the surgeon, who should have an adequate knowledge of all three of these methods of treatment.

If the resuscitation officer is called in it should be made quite clear to him at the outset whether he is being used as a consultant on a single occasion or whether it is desired that he exercise continuous supervision as long as fluid electrolyte balance remains a problem. If he is asked to act in the latter capacity his function should not be limited to the regulation of the nature and dosage of fluids given intravenously, but should include all intake and output of food and fluid in its widest sense. No change should be made in any of these without the resuscitation officer first being consulted. This should include decisions as to all possible variations in intubation, oral intake, rectal injections such as enemata, and the administration of drugs likely to influence intestinal motility or fluid electrolyte distribution, and ideally the decision to operate after conservative treatment. The final decision, of course, would be in the hands of the surgeon in charge. Finally, there should be a mouth-piece to convey the decisions to the nursing staff, and it would seem to me that the surgeon's resident medical officer would be the logical person.

I do not propose to discuss the details of fluid electrolyte balance, but I wish to make the following two points: (i) laparotomy without appropriate fluid and electrolyte adjustment is undesirable, taking treatment back to the days of twenty-five years ago; (ii) prolonged intubation without fluid electrolyte management is highly dangerous and may be lethal.

Intubation suction decompression on the obstructed bowel has advanced very considerably in the last twenty-five years, but there is at present wide divergence of opinion as to its proper place relative to operation and resuscitation. There are some who regard this with such disfavour that their methods of treatment are essentially those of those early days.

Properly used intubation is a major factor in decreasing mortality, and, conversely, improperly used it is highly dangerous, and a lot of the criticism directed at intubation suction is the result of its being improperly used.

Eleven years ago this hospital, the Geelong Hospital, commenced an investigation into intubation in which gastric, duodenal and intestinal tubes, and intermittent and continuous suction by syringe and various forms of apparatus were tried in various combinations.

Two things soon became apparent: (i) that successful intubation of the small bowel with an intestinal tube had many advantages over gastric and duodenal intubation; (ii) that continuous suction by apparatus of satisfactory design was infinitely superior to intermittent suction by syringe. Intermittent suction applied to a stomach tube is often successful, as is suction to an intestinal tube that never leaves the stomach; but on the whole much better results are obtained if the foregoing combination is used from the start whenever intubation suction is indicated. At times in this hospital the apparently less troublesome syringe suction by way of stomach tube is used, and at times it serves the purpose. However, while recently reviewing the hospital records I found that often this proved inadequate, and after a day or more was replaced by continuous intestinal suction, this usually being followed by a rapid improvement in all respects. A former member of our nursing staff who had five days' intermittent syringe suction through a stomach tube prior to a change to continuous intestinal suction, later made the following comment:

> When I was having syringe suction I usually had the feeling that although it was being done by my friends to the best of their abilities, the emptying of the abdomen was incomplete and at times I felt nauseated. Immediately continuous suction through an intestinal tube was commenced I felt better, and was satisfied that my alimentary canal was being emptied and this sensation increased with the migration downwards of the tube.

What are the advantages of this combination of intestinal tube and continuous suction? The main ones are as follows:

1. Decompression is more rapidly and more efficiently attained. Numerous case reports confirm this.

2. It provides the advantage that if it is proposed to use suction for some days, once the tube has passed the duodeno-jejunal flexure, even though decompression may be incomplete, a non-residue diet may be given orally simultaneously with suction. Digestion and absorption may be deficient early, but these rapidly become more satisfactory as the tube tip descends, and eventually become sufficient to allow discontinuance of intravenous feedings.

3. The decompression is so efficient that when operation is performed the patient's general condition is commonly excellent; in most cases the bowel is flaccid and collapsed and may be readily packed off where required, and the lesion is readily accessible, has a healthy circulation, and is amenable to the most radical forms of treatment. It is common to find that not only may one operative stage (that of operative decompression) be dispensed with, but also resection and anastomosis may be performed safely in cases in which, after other methods of pre-operative preparation, it might have been hazardous. At the same time the tube may be threaded down to any suture line and thus afford during the first few post-operative days direct protection to this line, at the same time allowing of oral feeding.

4. In extensive adhesive obstructions, palpation of the tube through the bowel wall frequently provides a useful indication as to which is the more proximal part of the bowel.

In our trials of various methods of applying suction we soon confirmed the very considerable increase in efficiency that resulted from changing from intermittent to continuous suction, provided that the apparatus was efficient and provided that those using it were supplied with clear instructions as to how to handle cessation of flow. Under these conditions it is constantly observed that the patients never again vomit. If they do then the suction apparatus is not working as it should. We tried in turn all the various types of continuous suction apparatus described at the time, such as the original Wangensteen apparatus and its various modifications, the Craig-Doyle pump, Branch's apparatus, and the more modern induction motor suction. These were discarded either because of complexity of construction or because of the necessity for excessive attention. Applying the principle that any chart or apparatus that has to be handled in the main by nursing staff of various degrees of intelligence and mechanical aptitude should be of the simplest design, of sturdy construction, and supplied with specific instructions in the event of any breakdown, we eventually settled on the apparatus which is now standard in all hospitals in this district (Figure I).

The main feature is a very large bottle for developing the negative pressure. It holds three to six gallons and it is found that if the system is airtight this is sufficient for the whole duration (which may be of some days) of the suction. In the initial stages the water level falls rapidly while the negative pressure is being built up and because of the large amounts of intestinal gas that are aspirated early. We commonly fill the bottle with a hose connected to it and an adjacent tap. There is very little that can get out of order and the main components are readily available from hospital stock. It is to be noted that with a large bottle the valve cannot be dispensed with.

The ward sisters point out that once this apparatus is in operation it gives much less work and is more efficient than intermittent syringe suction. They say that with the latter a nurse commonly stops suction when the fluid ceases running and gas only is obtained. A big feature of this apparatus is the irregular forcible gushing of large

volumes of gas which occurs from time to time. I usually suggest to patients that some gentle abdominal massage is likely to increase these gushes, and the patients tend to derive a considerable amount of satisfaction from this.

The combination of intestinal intubation and this form of continuous suction is so satisfactory that in the early days, when I was apt to remove a tube too soon, I was more than once asked by the patient to replace it. I usually explain to a patient what I am trying to achieve and he commonly cooperates by watching the glass Y-tube, informing the staff when the suction stops. If he is well enough he massages his abdomen occasionally, and finds that the procedure is likely to result in a sudden rush of gas through the apparatus. Those patients with massive adhesions who develop occasional obstructive symptoms are often treated by intubation alone. They know what they are in for and they welcome the commencement of intestinal intubation suction.

Several years have passed since we proved to our satisfaction the superiority of this combination of intestinal tube and continuous suction.

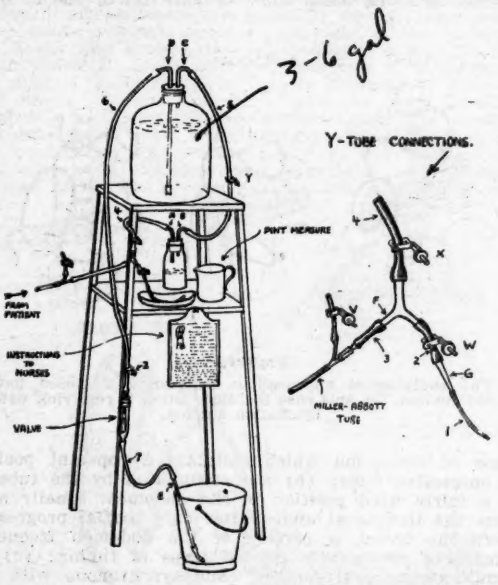

FIGURE I.
Writer's modification of Wangensteen's suction apparatus.

What is the position elsewhere? A few months ago a *questionnaire* was directed to seven teaching hospitals in Sydney and Melbourne concerning their attitude to intubation suction decompression in intestinal obstruction. The situation was found to be as follows.

At all seven hospitals a short tube, usually a stomach tube, occasionally a duodenal tube, was standard. An intestinal tube such as a Miller-Abbott tube was used "to a considerable extent", "occasionally", "very rarely" or "practically never". In two hospitals only did it appear that a planned trial of intestinal suction of any duration was made. To quote one hospital:

> Intestinal intubation is very rarely used as the technical disadvantages and difficulties outweigh any benefit the method might have over gastric aspiration. No trial of any size has been carried out in this hospital.

In these hospitals the suction used was usually syringe suction applied intermittently, continuous suction being used only occasionally, and sometimes only after a trial of syringe suction. One hospital made the following statement:

> It is felt by most members of the staff that the dangers of water and electrolyte imbalance are greatly enhanced by continuous Wangensteen suction.

The period for which suction was used before operation varied from the minimum necessary for preparation of the patient and the operating theatre to that sufficient to allow a rough correction of fluid and electrolyte deficiency. It was routine procedure in most hospitals, sometimes because the surgeon thought it desirable, and on other occasions primarily to please the anæsthetist, while in one hospital at least one anæsthetist asked that the tube be removed prior to induction of anæsthesia. In no hospital was operation delayed until the maximum obtainable decompression was achieved.

Suction was used as the sole treatment only in doubtful and in some acute cases, in post-operative ileus, in peritonitic ileus, and in the occasional case of recurrent obstruction associated with known massive adhesions. It would appear that in all these cases it was used only with some trepidation.

There are a minority, of which I am one, who would regard the foregoing over-all picture as deplorable and at first sight difficult to understand. Why is this combination of continuous suction and intestinal intubation in such disfavour?

The reasons appear to be two: (i) that it is difficult to manage; (ii) that it is dangerous.

There are two difficulties in the passage of the tube. The first is that of passing it through the nose; this is the only discomfort that the patient experiences additional to that associated with the short tube. The second is adjusting the tube once it is in the stomach so that it assumes a position pointing towards the pylorus. It is obviously not appreciated that the surgeon does not pass the tube into the duodenum, he merely places it so that the stomach may do so. Once this is achieved the tube will in the great majority of cases eventually pass into the duodenum, provided that at this stage it is left alone. In reviewing case histories of this hospital it has been apparent that one of the reasons why the tube was not passed into the duodenum was that excessive manipulation of its length was carried out while the tip was still in the stomach. Once in the duodenum, if properly managed, it will pass down to the most proximal obstruction, even though occasionally it may be temporarily held up at the duodeno-jejunal flexure.

Certain of the suction apparatus as used by others have unsatisfactory features, such as a complexity beyond the capabilities of the nursing staff, the necessity for frequent manipulation or emptying of bottles, insufficient robustness of the construction *et cetera*. The apparatus soon becomes unserviceable and the time arrives when no one is available with the desire or the knowledge to provide satisfactory maintenance, so that recourse is had to intermittent syringe suction and the apparatus falls into the discard.

There are a number of circumstances in which continuous intestinal suction over long periods may be dangerous; but the dangers of water and electrolyte imbalance are increased only where ignorance of resuscitation principles exists. Fæculant fluid within the bowel lumen is physiologically outside the circulation, and its only proper place is in the sewer.

Suction is satisfactory only if it removes all fæculant fluid and thereafter intestinal secretion as it is formed, until resolution occurs or operation is performed. It is lethal if it is not accompanied by skilled control of water and electrolyte requirements.

It is dangerous to persist with inadequate suction for too long a period, and this is likely to occur with any combination other than intestinal intubation *plus* continuous suction. It is not good treatment to precede continuous intestinal intubation with a trial of intermittent gastric suction.

We find, especially with juniors, that preoccupation with the various stages of intubation may lead one to overlook the appearance of indications that operation should no longer be delayed.

The Indications for Intestinal Intubation.

From the standpoint of intubation cases of small bowel obstruction fall into the following three groups:

Group I: Those in which prolonged intubation suction is used with the expectation that in most cases both the obstruction and the obstructing agent will permanently resolve. These include (*a*) early post-operative obstruction and (*b*) the obstructions of peritonitis.

Group II: Those in which a trial of prolonged intubation may result in resolution of the obstruction, if not of the obstructing agent. These include recurrent obstruction by old adhesions.

Group III: Those in which operation is obviously necessary and intubation is purely a pre-operative and post-operative measure. These include strangulating obstructions.

Group I.

Early Post-Operative Obstruction.

We have established that continuous intestinal suction rarely fails to effect decompression and result in permanent resolution of early post-operative obstruction.

We teach that vomiting occurring after the first twenty-four hours following laparotomy is obstructive until proved to the contrary and that immediate commencement of continuous intestinal suction is the treatment of choice and should be instituted without waiting for the establishment of a definite diagnosis.

This policy has had the result that post-operative obstruction rarely develops to any pronounced degree, resolution often preceding the passage of the tube into the duodenum. Post-operative obstruction is rarely allowed to become well developed and consequently is rarely mentioned as a complication on the identification sheet of our hospital histories. A review of the death certificate stubs and post-mortem records of this hospital over the last five years has failed to reveal one death in which post-operative obstruction appeared to be the factor responsible.

The earlier the obstruction appears after operation the greater the probability of permanent resolution, but this is dependent on the pathological basis.

Early post-operative obstruction may be (*a*) purely paralytic, (*b*) mechanical from the filmy fibrinous adhesions resulting from abrasion of the bowel from handling, packing *et cetera*, or (*c*) mechanical from a more definite adhesive area—for example, in the wall of an abscess cavity, around a drain tube, and to a cervical stump or to the deep surface of an abdominal incision. The first two are much more likely to resolve permanently than is the third.

Throughout prolonged intubation a careful watch has to be kept for the appearance of four indications for operation. These are, in order of appearance, (i) evidence of possible strangulation, (ii) failure to obtain satisfactory decompression, (iii) inability to maintain nourishment, and (iv) failure of the obstruction to resolve.

The presence of strangulation is suggested by the following signs and symptoms: (i) Vomiting that is violent and persistent. (ii) Shock persisting in spite of apparently satisfactory intubation and fluid electrolyte replacement. In simple obstruction the improvement is always early and dramatic. (iii) Pain that persists between bouts of colic. (iv) Tenderness, especially if it is localized to an area affected by rigidity, localized distension or a mass. Generalized tenderness is common in simple obstruction. (v) A rise in temperature, pulse rate and white blood cell count; these are not reliable indications.

Becker (1952), in discussing 412 cases of acute adhesive obstruction, writes along similar lines, observing that in 72% of simple obstructions tenderness was present, and in 18% of strangulated obstructions it was not.

The problem is not to prove that strangulation is present, but to satisfy oneself that it is not, and the only safe attitude is to operate in any case in which a non-resolving strangulation cannot be excluded. However, this should not be precipitate. A few hours of intubation suction and fluid electrolyte readjustment are invaluable, and it is preferable to use an intestinal tube, as this may be most valuable after operation, even though at operation the tube may still be intragastric.

The second indication is failure to obtain satisfactory decompression. Intubation can decompress the bowel only down to the most proximal block. If a second block exists a closed loop is present which reveals itself as the proximal part of the bowel is decompressed. When a closed loop is associated with strangulation—for example, volvulus—the necessity for operation usually becomes apparent early. An operation is performed irrespective of the degree of decompression of the proximal part of the bowel and with the tube in position.

Where strangulation is absent, as for example when adhesive obstruction occurs at two levels in the bowel, the sequence of events is commonly as follows. The intestinal tube produces early and satisfactory decompression of the bowel above the most proximal obstruction. When this has been obtained the presence of the closed loop obstruction is suggested by the following observations: (*a*) the persistence in serial X-ray films (Figure II) of one or more

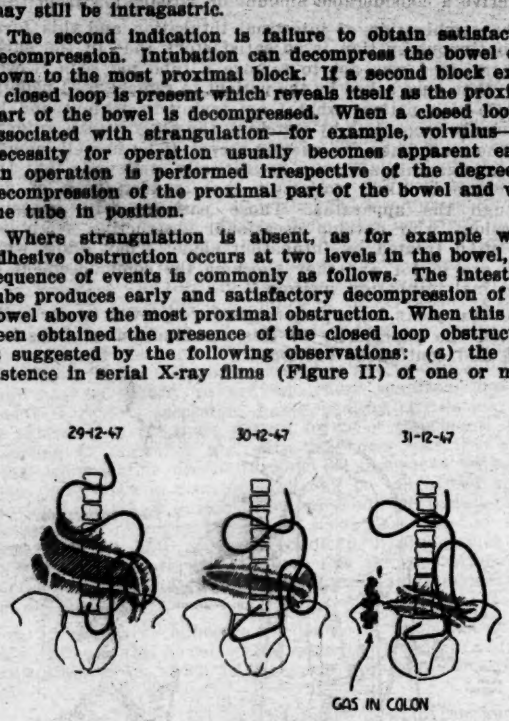

Figure II.

The radiological appearances suggesting a closed loop obstruction. In this case the obstruction is resolving with intubation suction.

loops of distension which maintain a constant position in successive films; (*b*) the assumption by the tube tip of a fairly fixed position in the abdomen, usually away from the ileo-caecal angle, after only partial progression down the bowel, a portion of the abdomen frequently remaining persistently free of loops of tubing; (*c*) the simultaneous recurrence of colic synchronous with borborygmi, localized distension and perhaps tenderness in the area of this loop.

At this stage conservative treatment is continued or operation is performed.

Operation can be only either a direct attack on the obstruction or decompression of the closed loop by enterostomy. In both cases proximal intubation suction is continued. In other words, intubation and enterostomy each have their place, and one without the other may prove inadequate.

It is probable that some criticism of intubation has been due to the failure to recognise the presence of a closed loop. Case I is an example of closed loop treated by enterostomy coincident with intubation.

Case I.—This patient developed early adhesive obstruction secondary to a pelvic abscess. The proximal part of the bowel was readily decompressed by Miller-Abbott intubation. Serial films revealed an increasing distension of the loop in association with the clinical features of a closed loop. Operation disclosed extensive multiple pelvic adhesions with a tensely distended closed loop. The ends of the loop were anchored in the wall of a granulomatous mass. Gentle attempts to free the loop resulted in opening into a large abscess cavity, but no release of the loop. The cavity was drained, an enterostomy was established into the loop, and proximal intubation suction was continued. Some improvement followed and the obstruction appeared to be resolving, so the Miller-Abbott tube was removed. A few days later

the enterostomy tube came out, and in an attempt to reinsert it, severe generalized peritonitis with considerable shock was precipitated, with recurrence of distension and vomiting. Miller-Abbott intubation was again successfully accomplished, and this was followed by slow but eventually complete recovery, and seven years later the patient was still well, having had no further trouble.

Case V is an example of a closed loop treated by separation of the adhesions.

CASE V.—An unmarried female patient had had a stormy convalescence following right oophorectomy and appendicectomy nine months earlier. She was admitted to hospital on this occasion with pregnancy associated with small bowel obstruction. A stomach tube was passed and intermittent aspiration was applied. The tube was vomited five hours later. The following day the vomiting and pain persisted without relief. The next day a stomach tube was reinserted and intermittent aspiration was commenced. Pain and vomiting persisted, and the distension increased. At 6 p.m. on that day the patient was transferred to my care, and the stomach tube was replaced by a Miller-Abbott tube attached to a continuous suction apparatus. She did not vomit again. Two days later she was complaining of persistent pain and soreness with occasional colic. Examination revealed that although the abdomen was generally tender, there was a more tender resonant mass to the right of the umbilicus. An X-ray film showed the Miller-Abbott tube to be well down the small bowel, and the local area of distension to the right of the umbilicus to be more pronounced. Although 280 ounces of fluid had been aspirated since intestinal intubation was instituted two days previously, her condition had deteriorated, there being a steady upward trend in both her temperature and pulse rate. A persisting closed loop obstruction was diagnosed, and laparotomy was performed (Figure III). The uterus was the size of a six months' pregnancy. The transverse adhesion was very tightly stretched across the loop of the small bowel. The bowel for some feet proximal to this point was dilated and reddened, but not distended, the end of the Miller-Abbott tube being felt two feet above the block. The loop of bowel between this block and the fimbrial adhesions was distended, tense, congested, reddish-purple and twisted around an axis formed by the two fixed points. The bowel distal to the fimbrial attachment was collapsed and normal. The conical adhesion was divided, the volvulus then resolving. The Miller-Abbott tube was threaded down to the fimbrial attachment, and the abdomen closed, the progress thereafter being uneventful. The tube was removed four days later.

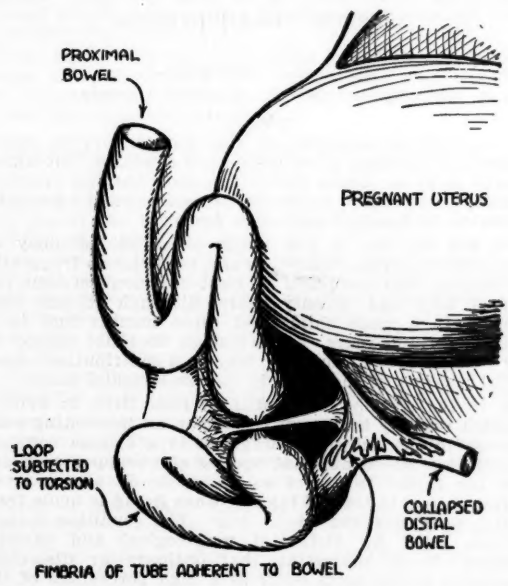

FIGURE III.
Case V: showing closed loop obstruction from adhesive bands.

The value of the pre-operative decompression of the bowel above the band obstruction and of the correction of the fluid electrolyte deficiencies was most apparent, as was the post-operative insurance against further obstruction provided by the indwelling tube. A contrast between the inefficient intermittent gastric suction and the continuous intestinal suction is to be noted.

Case VIII illustrates resection of a closed loop following preliminary intubation.

CASE VIII.—A woman, aged fifty-five years, five feet four inches in height, and weighing 17 stone, was admitted to hospital with severe abdominal distension and dehydration, and peripheral circulatory failure following several days of abdominal colic, vomiting and constipation. She had had several minor attacks after a hysterectomy some years before. A Miller-Abbott tube was passed, and she did not again vomit. The tube readily entered the upper part of the jejunum within thirty-six hours; but after passing in for only 24 inches it remained localized to the upper left quadrant of the abdomen. Gas shadows rapidly disappeared from serial X-ray films, the abdomen appearing homogeneously opaque. Dull pain persisted in the lower left aspect of the abdomen and back, and enemata gave negative results. A persisting closed loop obstruction, containing fluid only, appeared to be present, and laparotomy was performed with the tube in position. The ileum was adherent to the subumbilical incision in two places. The bowel above and below this point was dilated, hypertrophied and congested, and it was obvious that the obstruction lay elsewhere. The proximal part of the bowel was identified by palpation of the tip of the Miller-Abbott tube some feet proximal to the adhesions. The patient's obesity made examination of the pelvis difficult. However, a short, tensely distended closed loop fixed at each end was found fixed to the cervical stump. The adhesions were divided with difficulty. The affected loop was 10 inches long, and at each of the adhesions it was noted that fibrotic stenosis was present. Resection and anastomosis were performed and the Miller-Abbott tube was threaded past the junction. Four days later two normal bowel actions occurred spontaneously, and after a trial of clipping off of the tube and oral administration of fluid, the Miller-Abbott tube was removed.

Although operation was technically a little difficult, it was not embarrassed by the presence of numerous loops of tightly distended bowel, which would have been present if it were not for the preliminary intubation suction. There is no doubt that if this procedure had been attempted without preliminary decompression of the bowel above the most proximal block, the operation would have been hazardous and technically very difficult.

The third indication for operation, the inability to maintain nutrition, may occur if the proximal obstruction is high in the jejunum. If an adequate length of small bowel lies above the obstruction, once this has been intubated nutrition can be maintained by oral feeding.

The fourth indication for operation is failure of the obstruction to resolve.

When satisfactory decompression has been attained the probability of resolution without operation is assessed and suction is continued or operation is performed. In cases belonging to this group operation rarely becomes necessary.

The Obstructions of Peritonitis.

The obstructions of peritonitis are to be considered in a similar manner to those of early post-operative obstructions.

Localized peritonitis—for example, appendiceal or pelvic abscess—may be complicated by a mechanical obstruction and respond to suction in a similar manner, although resolution may be slower and may not occur until the infective focus is dealt with by operation. It may also be associated with a non-strangulated closed loop (for example, Case I).

The obstruction of diffuse or general peritonitis is initially paralytic, but the development of the inflammatory reaction soon adds a mechanical factor. If the infection is brought under control the inflammation may become localized in one or more situations, at each of which varying degrees of narrowing of the bowel lumen may occur.

The patient at this stage suffers from multiple mechanical obstructions of varying degree, with an associated pronounced paralytic element varying at different levels, resulting from the combined effects of distension and the direct action of bacterial toxæmia.

The effect of intubation suction in such a case is therefore unpredictable. It will always do some good, in that it will provide a varying degree of relief of the distension above the most proximal block. If the patient is fortunate, rapid resolution of the inflammation of all areas may occur, so that the mechanical blocks gradually disappear. At the same time, control of the infection may result in diminution of the bacterial toxæmia factor contributing to the paralytic element. Complete resolution of the obstruction may occur. Again the paralytic factor may never resolve and death may result from this alone. At the other extreme the initial paralytic ileus may resolve with or without intubation and without the inflammatory reaction ever causing a mechanical block.

The indication therefore is that the ileus of general peritonitis is to be combated by treatment of the infection and by the early institution of intestinal intubation, it being borne in mind that the latter may produce early and satisfactory decompression, may result in decompression only after an initial period of apparent failure, or may never produce satisfactory decompression. It has to be remembered also that enterostomies into one or more distended loops may have to be established in addition and that apparent resolution of the obstruction as a result of such combined efforts may, perhaps days later, be followed by recurrence of obstructive symptoms requiring resumption of intubation.

Group II.

In the early adhesive obstruction we believe that intubation may result in permanent resolution of both the obstruction and the obstructing agent. In the late adhesive obstruction we cannot hope for organized adhesions to resolve; but if the distension and fluid electrolyte imbalance are controlled, kinks or twists may undo themselves or tight bands relax.

We believe that, particularly in patients with known massive adhesions who have been subjected to frequent operations, prolonged suction with the object of obtaining resolution of the obstruction, even if not of the obstructing agent, is worthy of trial.

We have a number of such patients who have frequently undergone intubation and they are instructed on discharge from hospital that at the first signs of impending obstruction (and they soon learn to recognize these) they cease all oral intake, take no purgatives, and report promptly for intubation. We find that in these cases distension has no time to develop to any degree and a few hours' suction is often followed by relief of the obstruction. These patients regard this life as preferable to repeated laparotomy.

Again a close watch is kept for evidence of strangulation and the tendency is to operate earlier than in group I; in general we regard operation as probable. Our mortality figure is 2·2% as compared with Becker's (1952) 10·9%.

In the last five years the only deaths associated with prolonged continuous Miller-Abbott suction occurred in two cases of small bowel obstruction due to secondary carcinomatosis.

Group III.

The third group comprises the remaining obstructions, intubation being purely pre-operative and post-operative. In these a few hours' suction through an intestinal tube accompanied by resuscitative measures is invaluable.

Intubation is not usually necessary in obstructed external hernia.

The critics of intestinal intubation are usually advocates of immediate or early operation in all cases. Obviously there is no point in intubation if there is no distension; but it is not often that the opportunity occurs for diagnosis at such an early stage.

To advocate immediate operation as soon as the diagnosis is established in all cases irrespective of the duration of the obstruction is not good teaching and is a return to the standards of twenty-five years ago. A patient with distension, whether strangulation is present or not, needs at least some decompression and resuscitation prior to operation.

Conclusion.

The essential of satisfactory intubation is the combination of intestinal intubation and continuous suction.

Our over-all mortality rate in all cases of acute small bowel obstruction for the five years ending June 30, 1955, is 9·5%

In conclusion, I believe that one of the reasons why the practice of employing a relatively prolonged period of pre-operative suction has not been more widely adopted is that these patients are commonly handled by a junior surgeon who knows that his control over the patient ceases at 9 a.m. or some other arbitrary time. He knows that what he has to do has to be done before then or not at all as far as he is concerned. It puts a considerable strain on him if he feels that he would like to try a period of pre-operative suction if at the same time he knows that at the end of a certain period of time he will lose all control and in addition is likely to be criticized adversely by his senior for not operating earlier. The only answer to this is to allow the junior to stand on his own feet and to retain full control until the issue of the case has been determined.

Reference.

Becker, W. F. (1952), "Acute Adhesive Ileus", *Surg., Gynec. & Obst.*, 95: 472.

DISSECTING ANEURYSMS.[1]

By V. D. Plueckhahn,
Geelong and District Hospital, Geelong.

I apologize for speaking on dissecting aneurysm, which is generally accepted as an uncommon condition, but which actually is by no means rare in accurate hospital practice. In many cases a sure diagnosis is possible on the patient's admission to hospital or before death.

Let me first say a few words about the ætiology of dissecting aneurysm. Males are affected twice as frequently as females. The condition is most common between the ages of fifty and seventy years, although it has been reported in a male child aged three months and in a female aged 100 years. Hypertension does not appear to play a major role, although it may be a contributing cause. Medial necrosis of the aorta is the fundamental cause.

As to the ætiology of medial necrosis little is known, although recently lathyrism has thown an interesting sidelight on to the subject. Lathyrism is a disease confined to countries where different species of sweet-pea seed are used for food. It occurs as an epidemic amongst the poorest classes in time of famine, when bread is made from a mixture of pea and wheat flour. The condition mainly exhibits itself by virtue of neurological and skeletal changes. It is interesting that ordinary or dissecting aneurysms of the aorta occur in a high percentage of the younger subjects affected. A similar condition can be produced experimentally by feeding sweet-pea seed to rats. Approximately 10% of the younger rats so fed will develop true dissecting aneurysms of the aorta.

Finally, dissecting aneurysms are no respecters of persons. Nicholls, in 1761, in reporting to the Royal Society on the death of King George II of England, gave "a minute description of what occurred on that remarkable and melancholy occasion. His Majesty was found fallen on the ground, speechless and motionless. He appeared to have just come from straining at stool". Nicholls went on to describe a dissecting aneurysm with an intimal tear which had ruptured through the right ventricle.

[1] Read at a meeting of the Victorian Branch of the British Medical Association at Geelong on October 15, 1955.

In the past eighteen months in some 340 autopsies at this hospital there have been seven cases of dissecting aneurysm. Three of these were coroner's cases of sudden death. In three of the remaining four cases the diagnosis was made before death.

Dissecting Aneurysms Causing Sudden Death.

In the first group, in which the aneurysm caused sudden death, there were two women and one man.

CASE I.—The patient was a woman, aged fifty-four years, who felt a sudden severe pain in the chest whilst having her evening meal. She collapsed, and was dead in fifteen minutes. Autopsy revealed a dissecting aneurysm extending from the base of the aorta to the commencement of the descending aorta. The blood had dissected along the outer third of the media and had ruptured into the pericardial sac, which contained two pints of fresh blood, and into the middle mediastinum. There was an L-shaped tear of the intima just proximal to the innominate artery; the tear was four centimetres in length. The heart was normal in size.

CASE II.—The patient was a hypertensive man, aged seventy years, who was found dead in bed. Autopsy revealed a transverse split of the aorta just below the arch, with a dissection of the aorta from the arch to just above the orifices of the renal arteries. The dissection had ruptured into the middle mediastinum and into the left pleural cavity, which contained about four pints of fresh blood and blood clot.

CASE III.—The patient was a man, aged fifty-six years, who was admitted to hospital eleven hours prior to his death comatose and shocked, with a history of having collapsed thirty minutes previously. His condition rapidly deteriorated and he died. At autopsy, four centimetres above the aortic valve there was an oblique ragged tear of the intima three centimetres in length. Below this there was dissection along the outer third of the media, which had ruptured into the tissue of the middle mediastinum and into the pericardial cavity.

These cases were not diagnosable before death. Nevertheless, in approximately 50% of patients who live for some hours there are certain diagnostic aids which make an accurate diagnosis possible.

Diagnostic Signs in Dissecting Aneurysm of the Aorta.

Levinson, Edmeades and Griffiths, in a review of 58 cases, report the presence of an aortic diastolic murmur in 27·5% of cases. The appearance of such a murmur, with a widened supracardiac shadow, severe chest or abdominal pain and negative serological findings, is practically pathognomonic of dissecting aneurysms. There are three possible causes of the murmur: (*a*) an intimal split of the aorta acting as an arterio-venous shunt; (*b*) loosening of the commissure of the valve by the intimal split, the corresponding cusp so being allowed to drop; (*c*) a hæmatoma in the aortic wall distorting the aortic ring.

Neurological symptoms are present in approximately 20% of cases. They vary from an onset with syncope, dizziness, unconsciousness or hemiplegia to transient weakness or anæsthesia of one or more extremities.

Absent or diminished pulsation in one or other of the major peripheral arteries is noted in about 20% of cases.

With these facts in view, three of the remaining four cases exhibit interesting features.

CASE IV.—The patient was a man, aged sixty-two years, who awoke at 2 a.m. with extremely severe chest pain, was in a state of shock, and in addition complained of tingling and numbness of the left leg. Thirty minutes later he developed severe abdominal pain and tingling and numbness of both legs. Pulsation was absent in the right femoral artery. This was followed by severe pain and diminishing circulation in both legs. Eight hours later, with more severe pain in the chest, the patient collapsed and died. Autopsy revealed the heart to be of normal size. Hæmopericardium was present, and there had been hæmorrhage into the mediastinum. There was an inverted V-shaped tear of the intima of the ascending aorta. Dissection extended from the base of the aorta down the superior mesenteric artery, the left renal artery, the left internal iliac artery and the left femoral artery. The right iliac and femoral arteries were collapsed.

CASE V.—A man, aged sixty-two years, was admitted to hospital seventy-two hours prior to his death, with a two hours' history of severe "burning" pain in the chest and weakness of the right arm. His blood pressure was 150 millimetres of mercury, systolic, and 95 millimetres, diastolic. In the following twenty-four hours he gradually lost consciousness and left hemiplegia developed. Autopsy revealed a dissection of the outer third of the media from the base of the aorta to the right common carotid artery; this was completely encircled by the dissection, which extended up around the right internal carotid artery. In addition, in the brain there was an area six by four by six centimetres in extent of softening and hæmorrhage into the brain; this area occupied the position of the right internal capsule.

CASE VI.—A female patient, aged ninety years, was admitted to hospital nineteen hours prior to her death. She had had a sudden severe pain in her chest, which disappeared in four hours. The pain was accompanied by weakness in both legs. An aortic diastolic murmur was present, which had not been heard prior to her admission to hospital. She collapsed and died when using a bed-pan. Her previous health had been excellent, and her blood pressure was normal.

At autopsy the pericardial sac contained two pints of fresh blood and blood clot. One and a half centimetres above the aortic valve there was a ragged tear of the intima, four centimetres in length, which opened into the pericardial cavity. There was a dissection of the outer third of the media of the aorta from the aortic ring to just below the renal vessels.

Conclusion.

These six cases bear out the general features seen in large series of cases of dissecting aneurysm.

THE RATIONALE AND RESULTS OF BREATHING EXERCISES IN ASTHMA.

By J. H. BOLTON, M.D., M.R.C.P., BRYAN GANDEVIA, M.D., M.R.A.C.P., AND MURIEL ROSS, M.A.P.A.,
The Royal Melbourne Hospital, Melbourne.

THIS paper is the outcome of previous observations on respiratory mechanisms in normal subjects and in asthmatics. These gave particular emphasis to ineffective diaphragmatic control in asthmatics. Exercises were devised to attempt to correct this specific defect. A comparison of these exercises with those used as a routine in the treatment of asthma suggests that they are an improvement. Certain measures of respiratory efficiency tend to confirm this.

Respiratory Mechanisms.

Three main mechanisms by which inspiration is effected are recognizable clinically. Normally inspiration is produced by a combination of diaphragmatic breathing (manifested, with certain reservations, by inspiratory epigastric expansion, and hence frequently referred to as "abdominal") and costal breathing (chiefly so-called "bucket-handle" action of the ribs, responsible for "chest expansion"). At times of stress the use of accessory muscles of respiration, such as the scalene and sterno-mastoid muscles, introduces a third component of elevation of the upper ribs or "thoracic lift". The term "costal respiration" is best employed to include both the latter mechanisms. One of us (Gandevia, 1953) has used this term without specific definition when it was intended to emphasize the component of thoracic elevation. Other accessory methods of respiration, such as extension of the spine, although frequently associated with "thoracic lift", are of minor importance.

Respiratory Mechanisms in Asthma.

In asthma the presence of a costal form of respiration, with pronounced thoracic lift, has been recognized for many years. That it is of more fundamental significance than is usually conceded is indicated by the following observations.

1. The presence of the respiratory abnormality is not related to the length of the history, or to the severity, frequency or duration of the attacks, although it is clinically more obvious in those patients who have developed gross chest deformity.

2. Thoracic elevation and a generally costal rather than "abdominal" respiration persist between attacks, as for example in pollen-sensitive or seasonal asthmatics during the winter months.

3. An identical form of breathing is found in a significantly higher proportion of sufferers from "hay fever", either seasonal or perennial, than in normal subjects (Gandevia, 1953); "hay fever" is recognized as frequently preceding asthma.

4. This type of respiration is seen in certain psychological disorders, such as conversion hysteria and anxiety states, in which asthma, dyspnœa on minimal exertion and sighing or "unsatisfied" respiration are common symptoms (Allen, 1947).

This form of respiration suggests that diaphragmatic action is impaired, either relatively or possibly absolutely. This is appreciable clinically, but confirmatory evidence has been obtained by means of spirometric and fluoroscopic studies on normal subjects and on asthmatic patients between attacks, and from a comparison of the effects of unilateral electrical stimulation of the phrenic nerve in the two groups (Gandevia, Bolton and Ross, 1952; Bolton, Gandevia and Ross, 1954). This evidence may be summarized as follows:

1. Paradoxical, hesitant or ineffectual movement of the diaphragm was seen more frequently in the asthmatic than in the normal subjects, and the mean apparent diaphragmatic movement, as observed fluoroscopically, was significantly less in the former series.

2. Electrophrenic respiration was less efficient in the asthmatic patients, as shown by a comparative reduction in the tidal volume of air shifted by this means.

3. Although the range of movement of the stimulated hemidiaphragm was similar in the two series, the range of movement on the contralateral (unstimulated) side was significantly less in the asthmatic group, a finding most simply explained by postulating an actual weakness of the muscle.

4. During a maximal, slow inspiration a normal subject makes effective use of both diaphragm and intercostal muscles, but in a sudden, quick inspiration diaphragmatic efficiency appears to be limited by the elevation and expansion of the thorax produced by early and forcible contraction of the accessory muscles. A greater volume of air is normally inspired during the slow breath, and the difference between the two vital capacities may be expected to serve as an index of relative diaphragmatic function. In the normal series, after correction for chest circumference, this difference correlated closely with the observed maximum range of spontaneous diaphragmatic movement, but this correlation was not found in the asthmatic series. Of greater significance was the presence of a correlation between this difference and the range of movement of the electrically stimulated hemidiaphragm (virtually a correlation between what the diaphragm does and what it can be stimulated to do) in the normal subjects; in the asthmatic patients, on the other hand, a significant negative correlation was found. This finding was interpreted as indicating the presence of paradoxical diaphragmatic movement in these patients between their attacks. Furthermore, it is a finding which is incompatible with the presence of a low, flat diaphragm incapable of any appreciable descent, and therefore it excludes the possibility that the series as a whole was composed of emphysematous patients. Emphysema, which could be advanced as an explanation of all the foregoing observations except the last, was excluded on clinical grounds as far as possible. The amount of diaphragmatic descent produced by electrical stimulation was similar in the two series, a finding which could not be expected if the diaphragm was already low.

A simple demonstration of the prime importance of costal respiration to the asthmatic is afforded by the statistically highly significant correlation between chest expansion and vital capacity, after correction for chest circumference ($r = 0{\cdot}83$, $n = 39$). No such relationship exists in normal individuals. Despite this dependence on a costal type of respiration, the mean chest expansion of the asthmatic patients was actually significantly reduced in comparison with that of the control group ($t = 5{\cdot}0$, $n = 50$).

Although these results indicate diaphragmatic inefficiency, they do not indicate whether this is absolute—that is, actual weakness of the diaphragm as a muscle—or relative, the impairment of diaphragmatic function and of apparent diaphragmatic movement being solely determined by the dominance of thoracic elevation and perhaps chest expansion. Conceivably the two coexist.

Physiotherapeutic Principles of Breathing Exercises.

The attainment of relaxation is the basic principle underlying the physiotherapy of asthma. Mental relaxation is fundamental, for anxiety and fear favour the appearance of accessory forms of respiration (Allen, 1947). Physical relaxation, aimed at obtaining relaxation of the accessory muscles, dropping of the shoulders and elimination of thoracic elevation in quiet respiration, can be achieved satisfactorily only in the mentally relaxed patient; it may be noted that reduction in thoracic lift in itself removes a restricting influence on diaphragmatic effectiveness. On more or less empirical grounds the principle of relaxation has been widely accepted.

The second principle is that active inspiration must be taught with the emphasis on the "abdominal" form of respiration, followed by strictly passive expiration. Active, forced expiration has sometimes been employed in an attempt to "mobilize the diaphragm" (a point which is dealt with below), or to reduce the "over-distension of the chest".

There are a number of reasons why expiration should not be emphasized, which include the following:

1. Expiration is normally passive, and observation of an asthmatic patient indicates that he is already expiring very actively indeed, particularly during an attack; the abdominal muscles, for example, are rigid. "Hissing" carries with it a considerable risk of emphasizing expiration and producing active expiratory effort; it is therefore best avoided.

2. Bronchial diameter decreases during expiration; forcible expiration accentuates this. It is for this reason that asthmatic wheezing is more pronounced in expiration than in inspiration.

3. In contrast with emphysema the diaphragm is not low in uncomplicated asthma, as has been shown by several of the observations already stated. The fact that it appears to be low in some patients with asthma but no emphysema is possibly a function of the elevation of the thorax. It may perhaps be pointed out that however forcible is expiration the upward movement of the diaphragm is purely passive; even its return to the lower level of inspiration may in some circumstances be merely the result of relaxation of the abdominal musculature. It is therefore unlikely that the diaphragm will be efficiently reeducated by teaching the patient to push it upwards by the contraction of abdominal muscles. On the other hand it is possible, although not inevitable, that it may be taught to contract effectively by teaching the patient to inspire "abdominally" with a "relaxed chest" and abdomen.

There is other positive evidence to suggest that "abdominal" respiration should be a major aim of physiotherapy. If, in a patient with a mild wheeze, firm epigastric pressure with the closed fist is applied, further restricting the descent of the diaphragm, the wheeze is accentuated immediately. On removal of restriction the wheeze returns to its former level. If a cooperative and intelligent patient can then be made to relax his abdominal muscles on inspiration and to drop his shoulders, the wheeze will be further diminished. A similar temporary reduction in the severity of the wheeze in cases of *status asthmaticus* is

obtained by electrical stimulation of the phrenic nerve sufficient to produce maximal diaphragmatic contraction. This occurred in six patients treated in this fashion, relapse following the cessation of stimulation. Abdominal pressure, a heavy meal, tight corsets and the supine position all have in common a tendency to elevate the diaphragm in the chest (Herxheimer, 1949); all tend to accentuate wheezing.

The demonstration of a functional diaphragmatic inefficiency, together with the considerations outlined above, led us in this particular experiment to modify the regime of breathing exercises employed in the physiotherapy department of this hospital. These were based originally on the exercises recommended by the Asthma Research Council (1934) and employed by Livingstone and Gillespie (1935), and they owed much to experience gained by senior physiotherapists at the Brompton Hospital for Diseases of the Chest, London. All emphasis on expiration was eliminated, and active expiratory exercises were replaced by exercises designed to teach the patient to breathe "abdominally" or to use his diaphragm actively during inspiration. A comparative clinical trial of the two sets of exercises was begun with the object of testing not only the relative effectiveness of the modified regimen, but also the validity of the hypothesis upon which it was based.

TABLE I.

Estimated Grade of Improvement.[1]

New Exercises: Assessment.				Old Exercises: Assessment.			
Subject.	Patient's Opinion.	Allergist's Opinion.	Physiotherapist's Opinion.	Subject.	Patient's Opinion.	Allergist's Opinion.	Physiotherapist's Opinion.
Sh. J.	2	—	2	Kl.	1	0	0
Gr.	2	2	1	Cot.	1	2	2
Ma.	2	—	2	Fl.	2	2	0
Ke.	2	1	3	Do.	1	0	—
Wa.	2	1	2	Ry.	1	1	2
Sh.	1	1	1	Al.	2	—	3
Do.	2	3	3	Ap.	1	1	1
Re.	2	—	2	Th.	0	1	1
Dr.	2	2	3	Sh. A.	1	1	2
Al.	2	3	3	Da.	1	—	1
Wh.	2	2	2	Fo.	2	2	2
Dw.	3	3	2	Br.	2	2	—
O'B.	1	3	3	Fl.	2	—	3
Br.	2	—	2	Ho.	1	—	—
O'S.	2	—	1	St.	1	—	—
Ho.	1	—	—	Cu.	2	—	—
Hu.	0	—	—	Kr.	1	—	—
Ro.	2	—	—	Cl.	1	—	—
				Ba.	0	—	—
				Cr.	0	—	—
				Gr.	2	—	—
				Ch.	0	—	0
				Co.	2	2	1
				Wl.	2	1	2
				Coy.	1	2	2

[1] Grade 3, "very great improvement"; grade 2, "moderate improvement"; grade 1, "slight"; grade 0, "no change".

The trial exercises differed from the standard ones only in the teaching of inspiration as an active, and expiration as a passive, process. The importance of mental and physical relaxation and of reduction of the accessory element of respiration was stressed to both groups. All patients were taught the appropriate exercise at first in the semirecumbent position with the knees partly flexed, but later this was practised in conjunction with arm, leg and trunk movements. Attention was paid to postural correction and, when relevalent, posture in relation to occupation was taught; patients in sedentary occupations, for example, were shown how to sit correctly. Each patient was encouraged to regard what he was learning not merely as a series of exercises, but as something to be incorporated in his way of life. It may be noted that the standard exercises were considered to have given reasonably satisfactory results in the past. Details of the recommended physiotherapy regime are described more fully elsewhere (Ross, Bolton and Gandevia, 1956).

Clinical Trial.

Method.

Fifty asthmatic patients attending the Allergy Clinic were referred to the physiotherapy department, where the toss of a coin in each case decided whether the patient was to be taught the "new" breathing exercises (trial series) or the "old" (control series), except in the case of some patients who were referred for the "old" breathing exercises in the normal course of events shortly before the actual planned commencement of the experiment.

TABLE II.

Assessment.	Mean Score According to Grade of Improvement.	Number of Cases.	Difference.	*P.*
Patient:				
Trial series ..	1·7	18	0·5	<0·01
Control series ..	1·2	25		
First observer:				
Trial series ..	2·1	10	0·8	<0·05
Control series ..	1·3	13		
Second observer:				
Trial series ..	2·1	15	0·6	<0·05
Control series ..	1·5	15		

Material.

The patients were selected at random by one of us (B.G.), but patients in whom emphysema appeared the predominant lesion or who had significant evidence of cardio-vascular disease were excluded.

A review of both series was begun approximately a year later, no interim follow-up from the physiotherapeutic standpoint being attempted. Thirty-four patients attended the physiotherapy department in response to a letter, or if that failed to a visit from an almoner. Two were excluded from this study; one (control series) had attended the department once to make an appointment for treatment which she did not keep, and one (trial series) had all but his first lesson in breathing exercises at a city gymnasium. Twelve patients were unable to attend, but completed the *questionnaire* filled in by all patients; one of these (from the control series) could not be deciphered. Three patients (two from the control series and one from the trial series) had moved and could not be traced, while the final patient in the control series, who had attended only once for treatment, was eventually located but refused to cooperate in any way. Complete clinical records of 43 patients, 25 in the control series and 18 in the trial series, are therefore available. A summary of the clinical features of each case, made at the conclusion of the experiment, is given in Appendix I. For present purposes it is sufficient to state that the two groups appear comparable in respect to sex incidence, average age (thirty-five years), age distribution, total length of history (average of 10), duration of attacks, frequency of attacks, seasonal incidence and skin sensitivity reactions. All patients were receiving treatment other than breathing exercises, and almost all were being given injections of house dust and/or pollen extracts.

Each patient was individually taught the appropriate breathing exercises by one of six physiotherapists, but each physiotherapist taught patients in either group. The physiotherapists knew that one set of exercises was "new", but were not fully aware of the nature or plan of the experiment; there was no evidence that one group was taught more efficiently or enthusiastically than the other. In accordance with the usual practice in this hospital, the number of visits and the duration of treatment were not standardized, but were determined by the individual patient's ability to learn the exercises and by his willingness and ability to attend. Patients in the control series averaged ten visits (range one to 28) over a period of nine weeks; in the trial series the patients averaged 11

TABLE III.

Exercises and Subject.	Vital Capacity with Slow Inspiration (Cubic Centimetres ÷ 100.)	Difference between Vital Capacities with Slow and Quick Inspiration. (Cubic Centimetres ÷ 100.)	Resting Chest Circumference. (Inches.)	Chest Expansion. (Inches.)	Mastery of Diaphragm: Grade.[1]	Ability to Stop Attack: Grade.[1]
New exercises:						
Al.	34	5	90	6	4	5
De.	24	8	95	1	5	3
Sh.	38	6	75	6	3	1
Do.	47	12	83	8	5	4
O'B. ..	37	12	84	4	4	5
Re.	32	7	71	6	5	4
Wa.	26	2	71	7	4	2
Ma. ..	32	4	68	8	5	2
Ke.	19	5	107	5	1	1
Sm. J. ..	22	7	96	2	2	1
Tu.	36	12	76	8	1	—
Wh. ..	24	5	71	14	5	3
Dw.	30	0	72	6	5	4
Gr.	25	9	82	12	5	5
Old exercises:						
Coo. ..	32	4	75	8	4	5
Coy. ..	48	13	79	10	5	3
Al.	16	0	89	1	4	2
Ap.	10	−1	93	−4	3	3
Fl.	17	2	78	8	4	5
Fo.	18	3	71	2	4	2
Fl.	30	1	76	3	5	3
Do.	14	1	76	0	4	1
Cot.	19	1	66	−2	3	2
Ch.	22	−7	85	9	1	1
Ki.	22	−7	79	5	3	1
Da.	26	−2	104	1	2	1
Ry. ..	32	2	75	11	5	3
Sm. A. ..	23	4	69	8	5	3
Wl.	36	4	74	6	4	4
Br.	25	1	71	9	5	3
Th.	24	1	71	5	2	1
Ra.	22	0	69	−7	2	1
Ho. ..	24	5	93	2	4	2

[1] For explanation of grade, see text.

visits (range one to 22) in twelve weeks (range one to 36). The differences are not statistically significant.

Review of both series was undertaken after an average of seventeen months in the control series (range thirteen to twenty-five months) and of fifteen months in the trial series (range nine to twenty-one months), the former case being the only one reviewed in less than a year, a difference which is not statistically significant. At no stage of the study were the patients aware of the existence of the two separate groups.

In view of the difficulties in assessing progress in asthmatic patients, and the ease with which bias can influence the results, we confined ourselves to planning the experiment, taking no part in its detailed administration or in the assessment of the results. At the time of review all patients were examined by one of us (M.R.), who was unaware of the group to which each one belonged, in order to gauge his ability to breathe "abdominally". Five grades of these were recognized and recorded. At the same time the patients were questioned as to their ability to control attacks, and certain measurements of respiratory functions were made.

Three distinct and independent assessments of clinical progress were made. First, each patient filled in a simple *questionnaire* uninfluenced by an observer. Secondly, whenever practicable those patients who attended personally were referred to the honorary physician to the department of physical medicine, Dr. L. T. Wedlick, who recorded a critical appraisal of each patient's views on a similar *pro forma*. Thirdly, an identical form was completed for most of these patients by the honorary allergist to the hospital, Dr. R. H. O. Donald. The three forms contained

TABLE IV.

Summary of Clinical Features According to Age Groups.

—	Series.	Age Group (Years). 14 to 19.	20 to 39.	40 to 63.	Total.
Number of Cases	Control ..	4 (3 males)	14 (1 male)	7 (1 male)	25 (5 males)
	Trial	2 (2 males)	8 (2 males)	8 (2 males)	18 (6 males)
Length of history (years)	Control ..	2 to 17, average 11·0	3 to 20, average 9·5	2 to 15, average 10·0	Average 10·0
	Trial	7 to 14, average 10·5	2 to 10, average 6·5	3 to 30, average 10·5	Average 9·0
Seasonal symptoms only ..	Control ..	1	6	1	8
	Trial	0	3	1	4
Positive skin sensitivity response to dust only.[1]	Control ..	1	2	1	4
	Trial	1	3	0	4
Positive skin sensitivity response to dust and pollens.[1]	Control ..	3	10	4	17
	Trial	1	5	7	13
No skin sensitivity to common allergens.[1]	Control ..	0	1	1	2
	Trial	0	0	1	1

[1] Skin tests were not performed on one male patient in the forty to sixty-three years age group in the control series.

a series of questions to which five alternative opinions were permitted, corresponding to very great improvement, moderate improvement, slight improvement, no improvement, and deterioration. No patient recorded the last-mentioned. A score of three, two, one and nought points was allotted according to this grading. It was considered that a consistent difference in the patients' opinions and in the opinions of the experienced independent observers, whose approach to the value of breathing exercises for asthma might be expected to differ to some extent, would indicate a clinically significant difference in the efficacy of the two sets of breathing exercises.

Results and Discussion.

The scores and their means, based on grades of improvement recorded by the patients and by the two observers, are shown for both series in Tables I and II. It can be seen that the patients considered the new exercises to be superior to the old and that this opinion was confirmed by the allergist and by the specialist in physical medicine.

TABLE V.
Frequency of Attacks.

Series.	Daily.	Two to Five Attacks per Week.	Weekly.	One to Two Attacks per Month.	Less than Six Attacks per Year.	Unknown.
Control ..	5	5	6	2	4	3
Trial ..	6	5	2	4	1	—

The objective assessment of M.R. gives further emphasis to the importance of diaphragmatic education in asthma Table III).

It can be shown from these figures, first, that those who learnt the new exercises had a significant gain in vital capacity, and secondly, that the difference in vital capacity between a slow and a quick inspiration is greater in those patients using the new exercises. As has been already discussed, this is considered to be a measurement of diaphragmatic efficiency, so that the result is not surprising when the emphasis given to the diaphragm in these exercises is considered.

TABLE VI.
Duration of Attacks.

Series.	Minutes.	Hours.	Days.	One to Four Weeks.	Unknown.
Control ..	2	10	8	2	3
Trial	1	13	4	0	—

More encouraging is the comparison of the whole group in relation to ability to control attacks of asthma as compared with diaphragmatic efficiency, in which a highly significant correlation can be obtained. It is interesting, and we think important, that ability to stop attacks can be correlated with the difference in vital capacity derived from a slow and a quick inspiration.

Finally, the dependence of asthmatics on chest expansion has been previously emphasized. A comparison of the two groups in this respect shows that those who used the "old" exercises still exhibit this dependence, whilst those using the "new" approximate to normal subjects, in that they show no correlation between vital capacity and chest expansion.

The cases are few and conclusions must be tentative; but we believe that everything in this investigation emphasizes the importance of diaphragmatic education in asthma. In this we stress inspiration, but only because we have made no particular study of expiration in asthma. Observation suggests that expiration is also abnormal in its forcefulness, but this may be a necessary concomitant of inspiration. It requires further study.

Summary.

1. The rationale of physiotherapy for asthma is discussed and two basic principles are defined. These are: (i) the teaching of relaxation, both mental and physical, the latter referring particularly to avoiding the use of the accessory muscles of respiration and thus eliminating thoracic elevation as a significant component of the ventilatory mechanism; (ii) the teaching of active inspiration with emphasis on the "abdominal" form of breathing, and without any attempt to teach expiration as an active process.

2. Patients treated with exercises based on these principles fared significantly better than patients treated with similar exercises in which expiration was taught as an active process, as judged by statistical consideration of the patient's opinions and the opinions of two independent observers over a year after the commencement of treatment.

3. Over the whole series, irrespective of the regime employed, a highly significant correlation was found between clinical improvement and ability to breathe "abdominally".

4. Understandably, the difference between the vital capacities taken with a slow and a quick inspiration was significantly higher in those who were given the "new" exercises with diaphragmatic emphasis. This suggests that the difference is a real estimate of diaphragmatic function.

5. The difference between the two vital capacities correlates with the ability to control attacks, further emphasizing the importance of the diaphragm in asthma and the value of the difference as an index of diaphragmatic efficiency. This gives a simple method of assessing the progress of individual patients.

6. Vital capacity is superior with the new exercises.

7. The dependence of asthmatics on chest expansion is not affected by the "old" exercises, and this contrasts with a closer approximation to normal by those who have practised the "new".

Acknowledgements.

We are greatly indebted to Dr. L. T. Wedlick and Dr. R. H. O. Donald, whose cooperation made it possible for us to avoid any personal bias in the assessment of the results. Our thanks are also due to Miss I. Crohn, of the almoner department, for tracing several of the patients.

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[1] A correction should be made in Table I of this paper, in which the lines "Respiratory Mechanism Abnormal" and "Respiratory Mechanism Normal" should be interchanged in both places in which they occur. This error is apparent when the figures quoted are compared with the figures given in Table II, which are correct.

Appendix I.

A summary of the clinical data for each series is given in Tables IV to VI. An estimate of psychological stress and of intelligence was made in each case at the time of review by both observers; no significant difference was demonstrable between the groups. Infection played only a minor role in the production of asthmatic attacks in both series, being considered of importance in four cases in the control and three in the trial series.

Of the patients in the control series, eight had had courses of specific hyposensitization prior to 1951, the year in which the experiment was begun; five of the trial series had had previous courses of treatment. All but three of the control series and one of the trial series received some form of desensitization therapy during the period of the experiment; data on this point are not available in one case of each series. There is no reason to believe that specific desensitization was better selected or more effective in one group than in the other.

A NEW COUMARIN DERIVATIVE (G23350[1]): A PRELIMINARY STUDY.

By H. LANDER,
Department of Medicine, University of Adelaide,
AND
G. A. HUNTER,
Medical Registrar, Royal Adelaide Hospital, Adelaide.

SINCE the isolation and identification of the causal agent of "sweet clover disease" of cattle from improperly cured Melilotus hay by Link and his associates (1941, 1943) and the introduction of oral anticoagulant therapy with "Dicoumarin" (Melitoxin), a number of drugs of the "prothrombin depressant" type have made their appearance. These can be divided chemically into the following two groups: (*a*) the coumarins—for example, "Dicoumarin" (dicoumarol), ethylbiscoumacetate ("Tromexan (B.O.E.A.)"), cyclocoumarol ("Cumopyran"), and coumachlor ("Marcoumar"); and (*b*) the indanediones—for example, phenindione ("Dindevan", phenylindanedione) and dipaxin (diphenylacetyl-indanedione). The anticoagulants of the coumarin group have been formed by varying the substitutes in position "3" of the 4-hydroxycoumarin group, whereby it is possible to obtain a series of products possessing considerably different properties. G23350 (3-(α-(4'-nitrophenyl)-β-acetylethyl)-hydroxycoumarin) is one such product which has been recently introduced. It is the purpose of this paper to record the results of a short trial of this new anticoagulant.

Chemical Properties.

G23350 is reported by the manufacturer to be an almost tasteless crystalline powder, with a molecular weight (353) between that of dicoumarol (336·29) and that of "Tromexan" (408·35), melting at 191° to 192° C. It is not easily soluble in water or in organic solvents, but forms water-soluble salts with alkalis.

Advantages Claimed.

For clinical use the following advantages have been claimed for G23350 by the manufacturers: (i) rapid onset of action; (ii) ease of maintenance of a low "prothrombin" level; (iii) rapid elimination from the body following cessation of administration; (iv) rapid rise in the "prothrombin" level following the administration of vitamin K_1; (v) low toxicity.

With only a limited supply of the drug available, a preliminary study in an attempt to appraise these qualities was undertaken on 26 patients, 24 of whom were suffering from myocardial infarction. Extensive thrombophlebitis was present in the two remaining cases.

[1] It is understood that this substance is shortly to be marketed under the name of "Sintrom" ("Sinthrome").

Methods.

Prothrombin times were measured by the one-stage method of Quick, 5% human brain extract being used as a source of thromboplastin. Although Biggs and Douglas (1953) have shown that the one-stage test mainly measures the reduction in factor VII, the term "prothrombin" concentration will be used henceforth in this paper, the concentration being expressed as a percentage of normal.

In every case the prothrombin concentration was determined before the commencement of treatment, and every six hours for a period of forty-eight hours. Subsequently, daily levels were estimated in the mornings until either the drug was discontinued or vitamin K_1 was administered, whereupon six-hourly determinations were again undertaken until the prothrombin level rose to about 70%, and then daily until pre-treatment levels were regained. In nine cases the rate of recovery in the prothrombin concentration after administration of the drug was stopped was compared with that following discontinuation of the drug together with the intravenous administration of vitamin K_1, a control thus being achieved. However, this manœuvre was not carried out until at least four weeks had elapsed since the patients' admission to hospital, and only in those cases which were judged clinically to be "mild" and in which there was no electrocardiographic evidence of "through and through" or subendocardial involvement.

Dosage.

At the commencement of the trial the recommended dose of between 20 and 28 milligrammes (five to seven tablets) was given on the first day, and 16 to 24 milligrammes (four to six tablets) on the second day. However, in view of bleeding episodes which occurred in three patients at this stage (see below), the initial dose was lowered, 16 to 24 milligrammes (four to six tablets) being given on the first day (unless of course the initial prothrombin concentration was below 60%, when a smaller initial dose was given), and eight to 16 milligrammes (two to four tablets) on the second day. On this reduced scale, no further bleeding episodes were encountered in the induction phase, nor was the rate of prothrombin depression significantly impaired. Heparin was not used in the induction phase in any of the cases in this series. The usual maintenance dose lay between four and eight milligrammes (one or two tablets) daily, but varied between two and twelve milligrammes (one-half to three tablets). Except on the patient's admission to hospital, when the initial dose was administered as soon as the prothrombin concentration had been determined, the drug was given daily at midday in a single dose, during both the induction and maintenance phases.

Results.

Rapidity of Action.

G23350 reduced the prothrombin concentration to a therapeutic level (between 10% and 30%) within forty-eight hours in all cases, and in eight instances within twenty-four hours. A definite reduction in prothrombin concentration was evident within twelve to eighteen hours in all cases (Figure I).

Control Achieved and Maintenance Dose.

Throughout the trial the aim was to maintain the prothrombin concentration at a level of between 10% and 30%, and when possible between 10% and 20%.

In the early stages of the trial the control achieved was poor for the following reasons:

1. The recommended high dosages used on the first and second days resulted in levels of less than 5% within forty-eight hours in four of six cases, and in bleeding in three instances. Satisfactory results were subsequently obtained with a reduced dosage of 16 to 24 milligrammes (four to six tablets) on the first day, and eight to 16 milligrammes (two to four tablets) on the second day. It is to be noted that in estimating the dosage in the induction phase due consideration must be given to the general condition of the patient. Lower doses should be administered if this is "poor", and it would thus appear that

doses exceeding 24 milligrammes (six tablets) are seldom necessary.

2. Complete omission of the drug when the prothrombin concentration fell below 10% resulted in "escape" from the therapeutic level during the following day, for although the prothrombin concentration was maintained at a low level for twenty-four hours, it subsequently rose rapidly. This "escape" was prevented by continuing to administer the drug, but at a reduced dosage, instead of completely omitting a dose.

3. Insufficient attention was paid to the trend and rate of variation in the coagulation valency; when this was tending to rise it demanded that the dosage should be higher for a given prothrombin concentration than when it was tending to fall.

With further experience the importance of these factors was realized and the control achieved was most satisfactory in all cases of myocardial infarction once the correct maintenance dose had been found. In both cases of thrombophlebitis adequate control was difficult and there was considerable fluctuation in the prothrombin level from day to day. However, when these patients were changed

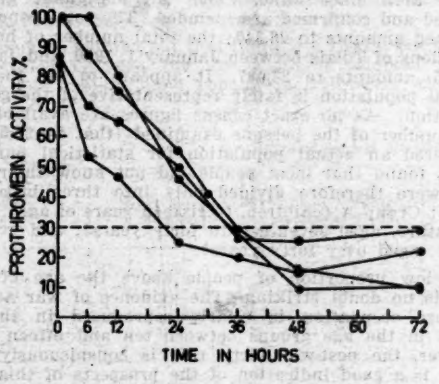

FIGURE I.

Showing the time taken to reach therapeutic levels in four representative cases.

to other anticoagulants ("Tromexan" and "Dindevan") the same difficulty was experienced. In the majority of cases control was possible on an almost constant daily dose, and no tendency for the drug to accumulate was observed. The usual maintenance dose was found to lie between four and eight milligrammes (one or two tablets) per day, but varied between two and 12 milligrammes (one-half to three tablets).

Prothrombin estimations performed at six-hourly intervals on nine patients once their condition was stabilized revealed only minor variations in the prothrombin concentration during the course of twenty-four hours; this suggests that daily administration of G23350 is adequate.

Rate of Elimination.

In all except one case the prothrombin concentration returned to a level of about 70% within forty-eight hours of cessation of administration of the drug. In the remaining case this level was reached in seventy-two hours. However, between three and seven days usually elapsed before pre-treatment levels were regained (Figure II).

Response to Vitamin K_1.

Towards the end of the stay in hospital, cessation of therapy in nine cases was accompanied by the intravenous administration of 20 milligrammes of an emulsion of vitamin K_1 (2-methyl-3-phytyl-1,4-naphthoquinone). Return to a normal level of "prothrombin activity" occurred in all cases within twenty-four hours, emergence to a "safe" level occurring in seven cases within six hours and in the remaining two cases within twelve hours (Figure II).

Thrombotic Episodes.

Although death occurred in three cases of myocardial infarction in this series, in no case was it apparent at autopsy that a further thrombotic episode was responsible. No thromboembolic complications were observed in any of the patients under treatment.

Hæmorrhagic Complications.

Bleeding episodes occurred in three cases. In each case the prothrombin level was below 5% at the time. One patient had a conjunctival hæmorrhage, one had a hæmatemesis from an unsuspected carcinoma of the stomach, and the third had a small hæmatemesis just before death. Autopsy in this last case revealed a chronic duodenal ulcer and multiple erosions in the stomach, as well as the myocardial infarct for which the patient was being treated. These three patients were treated early in the trial with high initial doses. In all patients treated subsequently with lower initial dosage no further hæmorrhagic complications occurred.

Toxic Side-effects.

Ulceration of the mouth developed in two cases, in one of which similar ulceration had developed towards the end of a course of phenindione ("Dindevan") therapy for a previous episode of myocardial infarction. In each instance the ulceration was minimal and responded to simple local measures, and little inconvenience was suffered by the patients.

No untoward effects were noted upon the hæmoglobin level or upon the erythrocyte, leucocyte, differential leucocyte or platelet counts in any of the patients treated. A spectrum of liver function tests performed before commencement and towards the end of the course of G23350 showed no evidence of liver dysfunction developing as a result of the drug. No nausea, vomiting or diarrhœa was experienced by any of the patients receiving the drug.

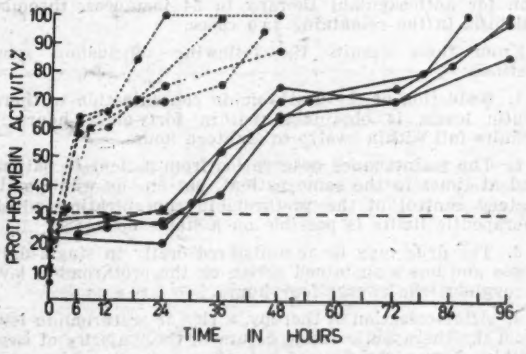

FIGURE II.

Comparison of the speed of recovery of prothrombin activity with and without the use of vitamin K_1 given by intravenous injection; with vitamin K_1, interrupted line; without vitamin K_1, solid line.

Mode of Action.

In three cases the two-stage prothrombin test and the thromboplastin generation test were performed. The results suggested that both factor VII and prothrombin levels were reduced. Factor V appeared to be unaffected. Thromboplastin generation was also impaired in these cases.

Discussion.

As far as can be determined from this small series of cases, it would appear that the claims of the manufacturer are substantiated.

The available derivatives of coumarin possessing anticoagulant properties may be classified into the following two groups according to their type of action: (i) preparations with little residual effect which provoke a relatively rapid but transient fall of the prothrombin level—for example, "Tromexan"; (ii) preparations with a rather prolonged action which provoke a relatively slow but long-lasting effect on the coagulation valency—for example, dicoumarol.

G23350 seems to have an intermediate action, the fall in the coagulation valency being obtained almost as rapidly as with "Tromexan", but there is a slightly longer residual effect, intermediate in duration between that of "Tromexan" and that of dicoumarol.

As has been indicated earlier, once the correct maintenance dose was found the response was generally constant. This suggests that this drug may be particularly useful where long-term anticoagulation is required.

An adequate explanation can be given for each of the three cases in which hæmorrhage occurred. All the patients had excessively low prothrombin levels as a result of the unnecessarily high initial dosage. Contributing causes may have been the gastric carcinoma later found in one of these patients, and in another there was a chronic duodenal ulcer together with gastric erosions.

It may be questioned whether these erosions were produced by the G23350. This cannot be answered here, but it may be noted that in two other patients mild ulceration of the mouth occurred. However, this responded to simple local measures without withdrawal of the drug.

Summary.

The results are reported of a preliminary study upon 26 patients who received a new orally administered anticoagulant, G23350 (3-(α-4'-nitrophenyl)-β-acetylethyl)-hydroxycoumarin). Myocardial infarction was the indication for anticoagulant therapy in 24 instances, thrombophlebitis in the remaining two cases.

From these results the following conclusions seem justified:

1. Reduction of the prothrombin concentration to therapeutic levels is obtainable within forty-eight hours, a definite fall within twelve to eighteen hours.

2. The maintenance dose varies from patient to patient, and at times in the same patient, but on the whole satisfactory control of the prothrombin concentration within therapeutic limits is possible on a stable dose.

3. The drug may be administered orally in single daily doses and has a sustained action on the prothrombin level throughout the twenty-four hours.

4. After cessation of therapy, a rise of prothrombin level from the therapeutic range occurs in the majority of cases within forty-eight hours, but three to seven days are required for pre-treatment levels to be regained. This recovery is greatly accelerated by the intravenous administration of vitamin K_1.

It is concluded from this preliminary study that G23350 is a potent anticoagulant with which satisfactory control can be readily achieved. It may prove to be particularly useful for long-term anticoagulant therapy.

Acknowledgements.

Our thanks are due to Professor H. N. Robson for his help and encouragement in the study; to Dr. J. A. Bonnin and Miss M. E. Jenner of the Institute of Medical and Veterinary Science for their technical help; and to Geigy, Australasia (Proprietary), Limited, for supplies of the drug.

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CANCER SURVEY IN THE TOLAI OF NEW BRITAIN.

By JAN J. SAAVE, M.D., A.I.C.S.,
Rabaul, Territory of Papua and New Guinea.

THE purpose of this study is to review the occurrence of cancer among the Tolai inhabitants of the Gazelle Peninsula of New Britain. It is hoped that the survey will make a further contribution to cancer demography, especially in regard to the problem of cancer in primitive races.

Tolais are Negroids and belong to the Melanesian group. There are approximately 32,000 of them in the area. The population is of almost entirely rural character, with the exception of 1500 persons who have become partially urbanized.

Tolais have been in contact with Europeans since 1875.

Material and Methods.

This survey is based on the clinical records of the Native Hospital at Rabaul and medical patrols conducted in the area since June, 1950. All malignant growths recorded and confirmed are included. The total population examined amounts to 26,340; the total number of hospital admissions of Tolais between January 1, 1950, and January 1, 1955, amounts to 23,437. It appears to me that the hospital population is fairly representative of the general population. As no exact census figures are available, the total number of the persons examined (that is, 26,340) is considered an actual population for statistical purposes. It was found that most people did not know their ages. They were therefore divided only into three broad age groups: Group A (children, to sixteen years of age), group B (mature, aged seventeen to forty years), and group C (senile, aged over forty years).

The low proportion of people above the age of forty years is no doubt striking. The evidence of war and the Japanese occupation is clearly reproduced in the low figures in the age groups between ten and fifteen years. However, the post-war birth rate is conspicuously high, and it is a good indication of the prospects of this population. It may be expected that Tolais will continue to increase, especially as the infant mortality rate is diminishing steadily.

A total number of 80 cancer patients is under review; 25% of them died in the hospital and 36·3% were operated upon; 87·5% of the growths were histologically confirmed. The total number of Tolai patients treated in this five-year period was 23,437, and the total number of deaths amongst them amounted to 347.

Discussion.

It will be seen from Table I that the occurrence of cancer in the senile group is as high as 25 per 1,000 of hospital population. The male to female ratio decreases in each age group and is 1·24 in group C.

Table II shows the general hospital mortality rate and the cancer mortality rate, which is rather high. It must be noted that the majority of cancer patients were admitted to hospital in stage IV (inoperable, with remote metastases).

Table III sets out the cancer mortality as compared with that of malaria and tuberculosis (all forms). It will be seen that both are main killers in the age group A (children), and cancer remains an important cause of death in group C.

Table IV shows the annual cancer mortality compared with those of malaria and tuberculosis. It is expected that both these tables will be of interest to those concerned with statistical surveys of the area under the ægis of the South Pacific Commission (Loison, 1954).

Table V reviews standardized cancer mortality on to a life table population, which was computed and based on the work of Lancaster (1950). The mortality due to cancer in a standardized population is 2108 per 1,000,000 *per*

TABLE I.

Sex and Age Incidence of Cancer in Hospital Population.

Year.	Total Number of Patients Admitted to Hospital.						Total Number of Cancer Patients.						Incidence per 1000.					
	0 to 16 Years.		17 to 40 Years.		Over 40 Years.		0 to 16 Years.		17 to 40 Years.		Over 40 Years.		0 to 16 Years.		17 to 40 Years.		Over 40 Years.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1950 ..	1994	1667	1534	1941	218	163	0	0	3	1	2	2	0	0	1·96	0·52	9·17	12·27
1951 ..	1310	1099	1291	1631	89	50	0	0	3	4	4	2	0	0	2·32	2·45	44·94	40·00
1952 ..	1012	878	948	805	153	79	1	0	8	3	0	3	0·99	0	8·44	3·73	0	37·97
1953 ..	772	645	907	606	87	42	1	0	13	8	2	0	1·30	0	14·33	13·20	22·99	0
1954 ..	1082	804	893	619	83	35	0	1	4	5	9	1	0	1·24	4·48	8·08	108·43	28·57
Total ..	6170	5093	5573	5602	630	369	2	1	31	21	17	8	0·32	0·20	5·56	3·75	26·98	21·68
Grand total	11,263		11,175		999		3		52		25		0·27		4·65		25·03	

annum for both sexes together. The comparative Australian figure shows an increase up to 3610.

It must be pointed out that there is a slight, but definite, discrepancy between the age grouping adopted in this report and the life-table population. However, the error introduced by inclusion or exclusion of a year or two will be small and unlikely to exceed the error due to the assessment of age.

It is generally agreed that Tolais seldom live longer than seventy years, and normally they live considerably less. It could therefore be concluded that the cancer mortality in group C (senile) in Tolais is even higher than in Australia. It is possible that the linear relationship between age and the mortality from cancer does exist among Tolais and has the same ætiological significance as in the other countries (Nordling, 1953; Armitage and Doll, 1954).

TABLE II.

Hospital General Mortality Rate and Cancer Mortality Rate per Annum.

Year.	Total Number of Admissions.	Total Number of Cancer Cases.	Total Number of Deaths.	Total Number of Deaths Due to Cancer.	Hospital General Mortality Rate.	Hospital Cancer Mortality Rate.
1950	7517	8	69	2	0·92%	25·0%
1951	5470	13	77	4	1·41%	30·77%
1952	3875	15	57	4	1·47%	26·67%
1953	3059	24	74	6	2·42%	25·0%
1954	3516	20	70	4	1·99%	20·0%
Total ..	23,437	80	347	20	1·48%	25·0%

TABLE III.

Death Rates for Cancer, Malaria and Tuberculosis in Age Groups (All Years).

Age Group.	Total Number of Deaths, All Causes.	Total Number of Deaths from Cancer.	Total Number of Deaths from Malaria.	Total Number of Deaths from Tuberculosis (All Forms).
Group A (0 to 16 years).	187	2 (1·07%)	44 (23·53%)	16 (8·56%)
Group B (17 to 40 years).	131	10 (7·63%)	16 (12·21%)	20 (15·27%)
Group C (over 40 years).	29	8 (27·59%)	1 (3·45%)	8 (27·59%)

Table VI shows the systemic distribution in the registered cancer cases. The skin was the organ affected in 50% of the cases, the alimentary system in 32·5%, and the blood and lymphatic system in 10%.

Table VII sets out comparative mortality figures in broad age groups in Tolais and in Australia. If the Australian figures are taken cumulatively from forty-five years onwards, it can be seen that the total mortality in Tolais corresponds to the Australian cumulative figure somewhere between sixty-four and seventy-four years, as shown in Table VIII.

TABLE IV.

Death Rates for Cancer, Malaria and Tuberculosis (All Forms).

Year.	Total Number of Deaths, All Causes.	Total Number of Deaths from Cancer.	Total Number of Deaths from Malaria.	Total Number of Deaths from Tuberculosis.
1950	69	2 (2·9%)	10 (14·5%)	13 (18·8%)
1951	77	4 (5·2%)	17 (22·1%)	12 (15·6%)
1952	57	4 (7·0%)	10 (17·5%)	6 (10·5%)
1953	74	6 (8·1%)	17 (23·0%)	10 (13·5%)
1954	70	4 (5·7%)	7 (10·0%)	3 (4·3%)
Totals ..	347	20 (5·8%)	61 (17·6%)	44 (12·7%)

Comment.

In spite of the interim character of this report, the cancer mortality figure in a standardized population of Tolais is highly significant, and indicates that the mortality in the cancer age group is closely approaching the Australian figures. I should like to point out that in view

of inadequate facilities, detection of cancer of the female genital organs was not attempted. I have no doubt that the cancer morbidity figure in Tolais would then be even higher. It must also be stressed that the Tolais, like most primitive races, are a juvenile population in contrast to aging European populations—for example, Australia (Lancaster, 1954).

TABLE V.

Cancer Mortality in Standardized Tolai Population.

Age Group. (Years.)	Number of Males and Females in the Life Table Population.	Number of Cancer Deaths in the Actual Population.	Mortality Rate per 1000 Actual Population.	Mortality Rate per 1,000,000 Life Table Population.
0 to 16	216,649	2	0·171	37·05
17 to 40	413,890	10	0·772	219·52
Over 40..	369,461	8	4·742	1751·98
Total ..	1,000,000	20	5·685	2108·55

Analysis of available figures reveals a curious racial predisposition to cancer. The high incidence of primary liver cancer (7·5% in relation to all forms of malignant disease) and that of primary carcinoma of the extremities (39·11% in relation to all forms of malignant disease)

TABLE VI.

Systemic Distribution of Cancers.

System.	Number of Cancer Patients.		
	Males.	Females.	Total.
Respiratory system ..	0	1 (3·23%)	1 (1·25%)
Alimentary system ..	19 (38·77%)	7 (22·58%)	26 (32·50%)
Genito-urinary system ..	3 (6·12%)	0	3 (3·75%)
Blood and lymphatic system.	6 (12·25%)	2 (6·45%)	8 (10·0%)
Skin..	21 (42·86%)	19 (61·29%)	40 (50·0%)
Other: breast	0	2 (6·45%)	2 (2·5%)
Total	49 (61·25%)	31 (38·75%)	—

may be either racially or environmentally conditioned. Higginson (1953) found that primary liver carcinoma accounted for 5% of all malignant disease in Bantu, South Africa. Camain (1954) stated that primary carcinoma of the liver is the commonest form of cancer in French East Africa, affecting predominantly males (male to female ratio, 4:1), the maximum incidence occurring at approximately thirty-five years of age. Charache (1939) pointed out that in Europeans squamous carcinoma of extremities formed only 1% of all primary carcinomata in different parts of the body. The upper extremities appeared to be more frequently affected than the lower (Clarke, 1944). In my series, however, the lower limbs were involved in 36·8% and the upper limbs in only 3·8%.

It may be added that the proportion of people aged over forty years in the actual population amounts to approximately 6·41%, and the total percentage of the same age group in the hospital population was 4·26%. This is an extremely low figure in comparison with European hospitals, where this age group forms between 40% and 45% of all admissions. It is interesting to note that as much as 66·3% of all patients with malignant tumours admitted to hospital were in stage IV—that is, they were inoperable because of the presence of remote metastases. The comparative figure in London is 21·4% (Harnett, 1953).

It must also be pointed out that some objections could be raised against considering the incidence of cancer in the hospital population as the best index of the general

TABLE VII.

Age Group. (Years.)	Mortality Rate per 1,000,000 Life Table Population.	
	Tolais.	Australia.
0 to 16	37	9
17 to 45	320	164
Over 45	1752	3465

cancer incidence (Lancaster, 1955). These objections may be of importance mainly because of differences in hospital policies in various countries. The test for statistical significance could not very well be applied to this preliminary report because only 80 cancer cases were under review.

TABLE VIII.

Age Group. (Years.)	Expected Mortality.	Cumulative Mortality.
45 to 54	342	342
55 to 64	742	1084
65 to 74	1190	2274
75 and over ..	2381	4655

Summary.

A survey of cancer conducted among Tolais gives the following findings:

1. The incidence of cancer increases with age, as in Europeans.

2. It can be anticipated that the mortality from cancer in Tolais is as high as, or even higher than, that in Europeans (white Australians).

3. The incidence of primary liver cancer and of primary carcinoma of the extremities is high.

4. Cancer morbidity is relatively high when the small proportion of people aged over forty years is taken into account.

5. It can be postulated that the occurrence of a specific cancer is influenced by abnormalities in metabolism and factors of environmental origin.

6. The incidence of cancer in males appears to be higher than that in females.

Acknowledgements.

I should like to thank Dr. J. T. Gunther, O.B.E., Director of the Department of Health, Territory of Papua and New Guinea, for his permission to publish this paper, and to express my gratitude to Dr. W. E. Smythe, pathologist, and Miss W. A. Legge, acting librarian, Rabaul, for their criticism and kind assistance in the computation of calculations.

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SOME ASPECTS OF THE TUBERCULOUS IN VICTORIA REQUIRING INDEFINITE SANATORIUM CARE.

By W. BOLLIGER,

Heatherton Sanatorium, Melbourne.

IN Victoria the tuberculosis sanatoria contain an ever-increasing number of patients requiring prolonged and indefinite sanatorium care. A similar phenomenon is occurring in other countries exhibiting pronounced declines in the mortality rates from tuberculosis in the past fifty years.

The purpose of this study is to investigate these people and to discuss why it is necessary to maintain them in costly institutions for indefinite periods.

Up to four years ago, there was in Victoria a long waiting list for those wishing to gain admission to sanatoria. At the present time there is only a short waiting list for females, and there are even empty beds for male patients. The result is that there is very little delay between diagnosis and admission to sanatoria.

Chemotherapy has reduced the average stay in sanatoria, and the turnover of patients has in consequence been greater.

Patients who in the days of the acute bed shortage would not have gained admission are now being admitted. This comment applies especially to the elderly who, having already had one sojourn in a sanatorium, became ill again. Prior to the advent of chemotherapy it used to be thought that little more could be done for them, and young patients were admitted in preference.

Chemotherapy saves many who in the past would have died within the first few months after their admission to sanatoria. Some of these, because of extensive lung damage, become more or less permanent sanatorium inmates.

Despite the considerable decline in annual mortality rates in Victoria in the past ten years, the work of the tuberculosis clinics is not decreasing. Notifications of new cases have remained at a constant level of about 1000 persons *per annum* in the State for the past five years. Prolonged chemotherapy for six months and more after discharge from sanatoria is becoming increasingly common both in Australia and abroad. Continuous chemotherapy for eighteen months to two years is accepted as a routine. The importance of seeking tuberculosis among the aged is being stressed, and hence all age groups among contacts have to be examined. All these factors contribute to the work of the tuberculosis clinics.

More people are being examined than in the past whose source of infection is completely unknown. Presumably casual contact as in a bus or tram, hotel bar or shop is becoming relatively more important. The familial nature of tuberculosis is becoming less obvious—though a bad family history is an ominous factor in assessing the prognosis. Families which are being eliminated by tuberculosis are still encountered.

The group of patients under discussion may be roughly subdivided. The subdivisions naturally are not clear-cut, and the one patient may fit into several of the following categories: (i) patients with extensive pulmonary tuberculosis; (ii) alcoholics; (iii) patients with tuberculosis, suffering from an additional chronic disease; (iv) the aged (aged seventy years and over); (v) patients with extra-pulmonary infection; (vi) psychotics, psychopaths, mental defectives, social misfits.

Patients with Extensive Pulmonary Disease.

The three main factors which keep a patient with severe lung damage in a sanatorium for indefinite periods after the maximum benefit has been attained are as follows: (i) The patient is too breathless and feeble to lead a reasonable existence outside the sanatorium. (ii) Despite treatment the patient deteriorates or remains infectious. (iii) The patient has nowhere to go.

The patient may not have a home purely by virtue of being unmarried. Sometimes the family may not want the patient. A home may be unsuitable because it contains children, and the patient's sputum persistently contains tubercle bacilli. In the case of a patient with a home and young children, the question of sputum containing tubercle bacilli does not in actual practice affect the issue—although theoretically it should do so. This is because one cannot keep indefinitely in an institution those who insist on living outside and have the facilities to do so. Needless to say, every effort is made to encourage such a patient to remain in a sanatorium, even though the maximum benefit has been attained.

Alcoholics.

Alcoholics are the bugbear of sanatorium life. They drift from one institution to another, their tuberculosis extending at variable rates until they die. Discharge from sanatoria is often hastened by alcoholism, although there are some who can abstain whilst in the institution and relapse on their discharge.

From the standpoint of sanatorium management alcoholics fall into three main groups, as follows: (i) those who manage to abstain from drinking whilst they are in-patients and relapse on their discharge; (ii) those who drink whilst in-patients and are promptly discharged; (iii) those who (usually without warning) abscond from the sanatorium to go on an alcoholic spree.

In the sanatorium management of alcoholics, the tuberculosis allowance is a useful lever. The tuberculosis allowance amounts to £4 per week for a single male in-patient (about one-third of the basic wage) and increases to £6 2s. 6d. (about one-half of the basic wage) for a variable period after his discharge from a sanatorium. Disciplinary discharge from a sanatorium for alcoholism involves loss of the allowance. Knowledge of this fact is a deterrent to many.

Sanatorium alcoholics do not really differ from alcoholics anywhere else, except that they may pass on their tuberculous infection because of carelessness and indifference. Every general practitioner has his quota of these unfortunates, bent on degrading themselves and their families.

The following three main types of alcoholics are encountered in sanatorium practice: (i) Those who have got into the habit of heavy drinking, but who because of economic reversal, insight or illness are able to decrease their intake without undue mental stress. (ii) Those who drink because of some personality defect. These individuals may be of the tense, worrying type, or be of a shy and nervous disposition, or feel ill-adjusted to the world. In the sanatorium they usually have no difficulties, but generally relapse after their discharge. (iii) The true addicts, who survive for only short periods in a sanatorium without breaking loose. Their prognosis is hopeless.

Our present approach to the tuberculous alcoholic psychopaths is unsatisfactory. Much time, effort and money is being spent on persuading people to remain in sanatoria, when their one thought is to get out and drink. Members of sanatorium staffs are tied up in the thankless task of trying to save individuals from themselves, and in the theoretical hope of protecting the community from infection.

A more practical approach would be to have a special ward, to which the known tuberculous alcoholics are

admitted when they are too ill to drink or have *delirium tremens*. When the patient feels well enough to go, and wants to go, he should be allowed to do so. Should any wish to remain, they are, of course, encouraged to stay. By their having freedom to return voluntarily to drinking, the length of time available for the tuberculous alcoholics to infect the community is lessened, because they die rapidly. When analysed critically the present regime often approximates to this.

Another school of thought proposes a different solution for refractory patients bent on endangering the community. This would consist of a special block in the sanatorium grounds where such patients would be locked up. Such a scheme has the obvious disadvantage of difficulty in obtaining suitable staff. It also cannot be defended because of the known vagaries in transmission of tuberculosis.

The Aged.

About half of those aged seventy years and over admitted to sanatoria stay on, either because they are too feeble for life outside or have nowhere to go, or because they are not wanted. Their families can be non-cooperative and difficult. They are generally a contented and grateful group.

Patients with Extrapulmonary Disease.

Patients with extrapulmonary tuberculosis require the same prolonged sanatorium regime as those with pulmonary disease. In the past this has been insufficiently emphasized. Extrapulmonary tuberculosis accounts for only a small minority of patients who stay indefinitely. Extensive genito-urinary tuberculosis accounts for the majority of this group. Some, because of bladder involvement, may have reached the stage of cutaneous ureterostomy. Others may exhibit hypertension with chronic anæmia.

Patients with Tuberculosis Coexisting with Another Chronic Disease.

A small group have tuberculosis with another chronic disease. The tuberculosis may or may not be important. In fact, its presence may have been used as a lever to gain admission for a patient whose life outside a sanatorium would be difficult. Such additional diseases may be rheumatoid arthritis, disseminated sclerosis, nephritis or cardiac failure. This group is important, because the patients may be young, with good expectation of life and with many years of institutional life ahead of them. The avoidance of unnecessary drugs is a prime consideration. Careless administration of hypnotics and sedatives is in the long run to the patient's detriment.

Psychotics, Psychopaths, Mental Defectives and Social Misfits.

In Victorian sanatoria the group of psychotics *et cetera* is small and unimportant. Only the more mildly psychotic and the more amenable mental defectives are treated. Many of these are dependent on their parents for supervision and guidance. When their parents die their position becomes difficult, as their siblings are usually not interested in them and their mental state is not such as to demand asylum care. An indefinite sanatorium stay is precipitated by the patient's mental state, which makes life outside an institution impossible or undesirable.

Conclusions.

A group of patients is being maintained in institutions for the tuberculous for indefinite lengths of time. All have tuberculosis in some form or other. In by no means all these cases is tuberculosis the basic reason for the indefinite sanatorium stay. The reasons range from the patient's being physically or mentally incapable of living outside a sanatorium, to his being unwanted. The importance of these patients to the community as a whole lies in their being a long-continuing potential source of infection, and in their requiring the expenditure of public money in their care and maintenance.

Reviews.

The Practice of Medicine. Edited by John S. Richardson, M.V.O., M.A., M.D. (Cantab.), F.R.C.P.; 1956. London: J. and A. Churchill, Limited. 9" x 6¼", pp. 1084, with many illustrations. Price: 40s.

THIS new text-book of medicine is intended primarily for the undergraduate medical student, but it will also be a useful reference book for the general practitioner as well as for the post-graduate student in medicine.

Each system and each special subject have been dealt with by a physician who has a special knowledge in that sphere, but most of the authors have also a wide medical background. As a consequence true perspective has been maintained and the approach to clinical problems is in the main a practical one.

The clinical pictures of the alimentary diseases and renal diseases could have been painted perhaps with a little more depth and detail. Both these subjects are dealt with rather sketchily, whereas the chapter on psychiatric problems, although excellent, is somewhat disproportionately long. For the most part, however, the book is well balanced.

Most of the major systems are well covered, and special praise is due to the authors of the chapters on the cardiovascular, respiratory and central nervous systems and to Dr. Richardson himself for the very practical chapter on *diabetes mellitus*. There are also some excellent chapters on special subjects including the antibacterial drugs, fluid and electrolyte balance, nutrition, immunity and allergy. Therapeutics is mostly dealt with succinctly and well. Vague statements as to the value of therapeutic measures, prominent in many of the older text-books of medicine, have been avoided.

The book is up to date in dealing with indications for use and details of usage of the newer drugs. The dangers and pitfalls in the use of drugs and combinations of drugs, particularly the newer antibiotics, have been adequately discussed. It is refreshing to see the importance of the individual stressed, and nowhere is this better exemplified than in the final and very practical chapter on the management of terminal disease. There is an extremely useful appendix with details of diets, and methods of collection of specimens for pathological examination. There are also tables of normal values for the more common pathological investigations and of antibacterial agents of choice for the treatment of infections with proportionate doses for children.

Biochemistry for Medical Students. By William Veale Thorpe, M.A. (Cantab.), Ph.D. (Lond.); Sixth Edition; 1955. London: J. and A. Churchill, Limited. 8" x 5¼", pp. 550, with 44 illustrations. Price: 27s. 6d.

THIS well-known text-book retains its previous arrangement and size. It has, however, undergone a good deal of revision and rewriting, especially in the chapters on protein structure and on the interrelationship of metabolites. The contents remain in three parts. Part I deals with the properties of the more important constituents of the body, Part II with absorption and metabolism, and Part III with nutrition and excretion. The third part includes several tables of food requirements and composition and a discussion of the relation of diet to the cost of living. Concise and lucid presentation, with a comprehensive index, make this book especially convenient to the student for purposes of revision. The absence of any discussion of the electrolyte pattern of the body is still a lack. A bibliography of a hundred selected references is given. This is rendered more accessible by the key to topics appended to it.

Pulmonary Circulation and Respiratory Function: A Symposium Held at Queen's College, Dundee. 1956. Edinburgh and London: E. and S. Livingstone, Limited. 7¼" x 9¾", pp. 54, with illustrations. Price: 12s. 6d.

A SYMPOSIUM on "Pulmonary Circulation in Health and Disease" and "Respiratory Function" was held at Queen's College, Dundee, in September, 1955. A number of workers from many parts of Great Britain met and short papers were given followed by discussion. The proceedings have been published in a book of 44 pages. As there were seven papers in the first part and five in the second part, it follows that the papers do not give much detail. Detail comes out, to some extent, in the discussions. A wide field was covered including pulmonary vasomotor nerve activity, collateral circulation of the lungs, *cor pulmonale* in coal miners, left auricular pressures in man. In the section on respiratory

function the papers include those on pulmonary function in the newborn lamb, gas diffusion and lung function, and breathing machines.

Within the limitations of space the papers are good and interesting.

The little book will be most useful to those who attended the symposium, but has much of interest for physicians.

Rorschach Location and Scoring Manual. By Leonard Small, Ph.D.; 1956. New York and London: Grune and Stratton, Incorporated. 11" x 8½", pp. 216, with illustrations. Price: $6.50.

DR. LEONARD SMALL'S "Rorschach Location and Scoring Manual" is designed to assist those who are already experienced in the application and interpretation of Rorschach material. The areas on the test cards to which responses are most frequently given are indicated on diagrams. More than 6000 responses are listed for the complete set of ten cards and scoring is based on the experience of eighteen leading Rorschach workers. This book should greatly facilitate the intricate and time-consuming task of scoring the Rorschach test, but some allowance must be made for cultural and educational differences, since the author worked on United States test subjects.

Classification for Medical Literature. By Eileen R. Cunningham, with the collaboration of Eleanor G. Steinke; Fourth Edition; 1955. Nashville: The Vanderbilt University Press. 8½" x 5½", pp. 184. Price: $2.75.

THE appearance of a fourth revised and enlarged edition of "Classification for Medical Literature" is timely, in view of the developments and expansions which have taken place within the fields of medicine and surgery since the publication of the previous edition.

The introduction of new terminology into medical classifications presents many problems if the system in existence is out of date or does not allow for further expansion. This latest edition, however, provides an extremely comprehensive coverage for modern medical classification, and the author and her collaborator are to be commended for the diligent way in which it is apparent they have undertaken the task of revision. The regrouping of a number of subjects, the completeness of the index (an increase of three pages over and above the previous edition) and the reduction of the number of "see references" are all worthy of special mention. Large libraries will find that the problem of subdivision of specific subjects has been ably handled, while smaller libraries are provided with a basic and extensive guide to medical classification, with full scope for further expansion as required by the growth and development of the library concerned.

Laughter and the Sense of Humour. By Edmund Bergler, M.D.; 1956. New York: Intercontinental Medical Book Corporation. 9" x 6", pp. 509. Price: $5.00.

IN this book Dr. Edmund Bergler, a psychoanalyst, has added to Freud's theories. When Freud wrote his "Wit and its Relation to the Unconscious" fifty years ago he suggested that laughter resulted from deviation of psychic energy normally used in repression, with a temporary sense of relief. Dr. Bergler maintains that in so far as Freud had not then postulated the triad of Super-ego, Id and Unconscious Ego and had made no intensive analysis of the laughter situation, his theories were incomplete. Later analysts have seen in humour an attack by the Ego on the Super-ego and all the external authority which it represents. According to Dr. Bergler the basis of all humour is the denial of one's fear of one's own psychic masochism. To talk of being tickled to death is a plain recognition of underlying masochistic danger. With the sophistry which pervades the reasoning of psychoanalysts we are told: "The only pleasure we can extract from displeasure is to make displeasure into pleasure." This "ingenious solution" leads directly to the pleasure-in-displeasure pattern, that is, psychic masochism. Episodes which illustrate the victory of the weak over the strong appeal to the infantile sense of omnipotence and megalomania. Certainly the Tom and Jerry film cartoons appeal to the infantile. Dr. Bergler maintains that the child's megalomania is responsible for movements of the tongue while he struggles to guide his hand in writing—the tongue at least is obedient while the hand refuses. But does the tongue parallel the movements of the hand, and is it under any better control? The peculiar quality of American humour often regarded by the Europeans as "low" derives from the desire to debunk European pomposity. But Americans are quite ready to debunk themselves. May not the proclivity to debunk be motivated by a sense of inferiority, cultural, for example?

It has been said that if Adam came on earth again the only things he would recognize would be the old jokes. The first English jest book was published in 1526. Mothers-in-law, debts, sexual ineptitudes, excretory function, stinginess, pomposity and stupidity have provided most of the themes. Does one laugh with or at another? Neither, says Dr. Bergler, some of whose patients have punned on his name when they received his accounts. The other persons are mere alibis, substitute victims of the laugher's Super-ego.

This book will be enjoyed for the many examples of wit and humour culled from a very wide range of reading, but only Freudian psychoanalysts are likely to follow the author's arguments. Apparently we are amused and we laugh in order to blind ourselves to the intolerable mischance that: "There but for the grace of God stand I."

Basic Otolaryngology. By Francis L. Lederer, B.Sc., M.D., F.A.C.S., F.I.C.S. (Hon.), and Abraham R. Hollender, M.Sc., M.D., F.A.C.S.; Fourth Edition; 1956. Philadelphia: F. A. Davis Company. Sydney: Angus and Robertson, Limited. 9" x 6", pp. 453, with many illustrations. Price: £3 14s. 3d.

THE fact that Lederer and Hollender's "Basic Otolaryngology" has reached its fourth edition is a fair indication of its value. It is designed to supplement lectures in the specialty to students in order to satisfy the high standards of modern medical teaching. Numerous text-books of this type have been produced in the past, but this one is rather unusually comprehensive, and for completeness includes borderline subjects.

The anatomy and physiology of the parts are very well and adequately described with the exception of the paranasal sinuses, to the anatomy of which but surprisingly scant attention is given. Methods of examination are fully but simply described so as to be readily understood. Very wisely in such a work, no attempt is made to describe or illustrate operative procedures.

Treatment recommended is sound and thoroughly up to date in regard to chemotherapy and antibiotics. The subject matter throughout is concise and well set out for ready reference. However, the sentence commencing at the foot of page 333 does not make sense, and it would appear that a printer's error in the omission of a line or two has been responsible.

Numerous charts of differential diagnosis should be of much value.

Illustrations are unusually liberal and their quality is quite a feature of the book. The anatomical figures are both numerous and really first rate. Particularly good are the several large coloured charts on the anatomy and pathology of the outer, middle and inner ear. The schematic chart of the anatomy of the middle ear is invaluable.

The book is very well produced. It should prove an excellent book of reference in oto-rhino-laryngology for the student, and its illustrations are even worthy of the notice of one studying for a diploma in the specialty.

Textbook of British Surgery. Edited by Sir Henry Souttar, C.B.E., D.M. (Oxon.), F.R.C.S.; Volume I: The Abdomen; 1956. London: William Heinemann (Medical Books), Limited. 9½" x 7½", pp. 555, with illustrations. Price: 105s.

IT is a pleasure indeed to read Volume I of this textbook. It covers general surgery of the abdomen, whilst Volume II will cover, among other subjects, neurological surgery, chest surgery, genito-urinary surgery and plastic surgery. Volume III will cover orthopædics, the surgery of trauma and infection.

The "Textbook of British Surgery" is under the general editorship of Sir Henry Souttar, and in Volume I he has collected a team of fourteen well-known contributors from the leading medical schools and hospitals of the United Kingdom.

General surgery of the abdomen is covered in its entirety. In each section, the diagnosis, pathology, prognosis and treatment, including surgical procedures, of the diseases of each organ are discussed. These discussions are very practical and are well illustrated by photographs and original drawings.

This book is a magnificent achievement for British surgery, and we look forward to the remaining volumes. Intended

for the general surgeons, it is a "must" for all surgical registrars, and especially for the post-graduate working for the fellowship of one or other of the Royal Colleges.

Original Good. By Macpherson Lawrie; 1956. Ashingdon, Rochford, Essex, England: The C. W. Daniel Company, Limited. 7¼" x 5", pp. 92. Price: 6s.

DR. MACPHERSON LAWRIE begins his book "Original Good" with the following quotation from an earlier work, "Practical Possibilities": "There is nothing evil—or slothful—born into the heart of man. Go out to meet him remembering this, and Humanity, in time to come, will bless you and respond.' From this premise he proceeds to a detailed description of man as he sees him, conscientiously stressing the good. He firmly believes that, from the point of view of character, men are born equal, and that evil attitudes and habits are imposed on the child by faults of upbringing and environment. In one section of his book he attempts to answer in advance those who will object that men in this respect are not born equal, any more than they are born equally endowed physically. Even when theological considerations are set aside, it is not at all certain that he has succeeded in this attempt. However, the positive approach to humanity's problems has everything to commend it, as has been effectively demonstrated by the success of such writers on the subject as Dr. Norman Vincent Peale. The thoughtful and sincerely held beliefs of Dr. Lawrie deserve close attention. This little book is beautifully written and easy to read, and deserves to be taken seriously, even if it is not so completely convincing as the author would wish.

Notes on Books, Current Journals and New Appliances.

Family Doctor. Published monthly by the proprietors, the British Medical Association, Tavistock Square, London, E.C.1. Sole agents for Australia and New Zealand: Gordon and Gotch (Australia), Limited. Subscription for twelve months: 20s. (sterling), including postage.

THE common sense and human touch which lie behind the production of *Family Doctor* are evident from the choice of the cover picture for the August issue. It is a delightful study of a ten-year-old redhead of manifest rude health, devouring an ice-cream and pausing in the reading of a comic paper only to make eyes at the photographer. An accompanying character sketch indicates that she is a normal child, who dislikes some things that are good for her and likes some that are not good for her. She is neither praised nor blamed, but accepted for what she obviously is—an average healthy youngster. This is a characteristic *Family Doctor* attitude—a balanced realistic approach to the health needs of ordinary people, without much dogmatism or moralizing, yet with sound medical authority behind what is said. This is the sort of think that the average person is most likely to take notice of; so *Family Doctor* can safely be recommended to patients by their medical advisers. The August issue has articles on modern operative surgery (by Sir Cecil Wakeley), the need for corneas for corneal grafts, "Living in Space" (as interesting as science fiction but more reliable), some sensible aspects of food requirements, music and moods (with good pictures), athletes and injuries, how to build a swimming pool, bread, care of the skin and how food becomes poisoned. Other regular features are the "Under-Five Forum", recipes (summer biscuits), a pattern service, beauty hints, first aid, answers to queries and readers' letters. The general make-up is as fresh and pleasing as usual.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Mathematics for Nurses: A Course for Pre-Nursing Students", by Dorothy Button, B.A.; 1956. London: Faber and Faber, Limited. 7½" x 5", pp. 104. Price: 8s. 6d.

Designed to help the promising student in the calculations she has to make.

"Cryptococcosis: Torulosis or European Blastomycosis", by M. L. Littman, M.D., Ph.D., and Lorenz E. Zimmerman, M.D.; 1956. New York and London: Grune and Stratton, Incorporated. 10¼" x 7", pp. 215, with illustrations. Price: $8.50.

The authors have attempted to describe and illustrate fully the wide range of clinical and pathological manifestations produced in man and animals by *Cryptococcus neoformans* and also to deal with the history, epidemiology and technical aspect of the subject.

"Medical Effects of the Atomic Bomb in Japan", edited by Ashley W. Oughterson and Shields Warren, National Nuclear Energy Series, Manhattan Project Technical Section, Division VIII, Volume 8, First Edition; 1956. New York, Toronto, London: McGraw-Hill Book Company, Incorporated. 9½" x 6½", pp. 493, with illustrations. Price: $8.00.

Based on the six volume report of the Joint Commission for the Investigation of the Effects of the Atom Bomb in Japan.

"Anatomy for Surgeons: The Thorax, Abdomen and Pelvis", by W. Henry Hollinshead, Ph.D.; Volume II; 1956. New York: Paul B. Hoeber, Incorporated. 10½" x 7½", pp. 952, with 1109 illustrations. Price: $20.00.

The first volume was published in 1954.

"Atlas Illustrating the Topographical Anatomy of the Head, Neck and Trunk", by the late Johnson Symington; 1956. Edinburgh: Oliver and Boyd, Limited. 19¾" x 12¾" box containing 36 plates. Price: £5 5s.

First published in 1917, this atlas contains 25 plates showing horizontal sections and two reconstructions covering the head, neck and trunk. Sections of the head were added in the second series.

"Physiology of the Ocular and Cerebrospinal Fluids", by Hugh Davson, D.Sc. (Lond.); 1956. London: J. and A. Churchill, Limited. 9½" x 7½", pp. 396, with 109 illustrations. Price: 65s.

The author thinks that he is effecting a liaison between the clinical neurologist and the ophthalmologist.

"Subarachnoid Hæmorrhage", by John N. Walton, M.D. (Durham), M.R.C.P.; foreword by Sir Charles Symonds, K.B.E., C.B., D.M., F.R.C.P.; 1956. Edinburgh and London: E. and S. Livingstone, Limited. 8½" x 6", pp. 366, with illustrations. Price: 30s.

The book is designed from the point of view of the physician and is based on the study of 312 cases of "spontaneous" subarachnoid hæmorrhage.

"The Life of Hugh Owen Thomas", by David Le Vay, M.S. (London), F.R.C.S. (England); 1956. Edinburgh and London: E. and S. Livingstone, Limited. 9" x 6½", pp. 143, with illustrations. Price: 25s.

The author describes Thomas's writings as full of freshness, vigour and modernity of thought and as marked by humility in his contemplation of the efficiency of his practice.

"The XIV Japan Medical Congress", edited by The Bureau of Archives, The XIV Japan Medical Congress at the Faculty of Medicine, Kyoto University. Part I, April 1-5, 1955, pp. 396; Part II, April 1-5, 1955, pp. 352. 11" x 7½", with illustrations.

Most of the discussions are in English; some are in German.

"Australian Cooking for the Diabetic and the Overweight", produced by the Diabetic Association of New South Wales, approved by the Dietetic Association of New South Wales; 1956. Sydney: Angus and Robertson, Limited. 8¾" x 5½", pp. 77. Price: 7s. 6d.

This is a book of recipes compiled by a "consultant dietitian".

"Medicinal Chemistry", edited by F. F. Blicke and C. M. Suter; Volume II; 1956. A series of reviews prepared under the auspices of the Division of Medicinal Chemistry of the American Chemical Society. New York: John Wiley and Sons, Incorporated. London: Chapman and Hall, Limited. 9" x 6", pp. 318. Price: $10.00.

Intended for chemists and pharmacologists concerned with the synthesis and evaluation of new compounds.

The Medical Journal of Australia

SATURDAY, NOVEMBER 3, 1956.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

A NATIONAL MEDICAL LIBRARY FOR THE UNITED STATES.

As the result of an appropriate legislative Act approved by the President of the United States on August 3, 1956, a National Library of Medicine has come into being. It is placed for administrative purposes in the Department of Health, Education and Welfare, and is essentially the Armed Forces Medical Library reconstituted in such a way that it will have the opportunity and resources for development that it should have. The constituting Act states that the Surgeon-General of the United States, through the library and subject to certain provisions, shall:

> (1) acquire and preserve books, periodicals, prints, films, recordings, and other library materials pertinent to medicine;
>
> (2) organize the materials specified in clause (1) by appropriate cataloging, indexing, and bibliographical listing;
>
> (3) publish and make available the catalogs, indexes, and bibliographies referred to in clause (2);
>
> (4) make available, through loans, photographic or other copying procedures or otherwise, such materials in the Library as he deems appropriate;
>
> (5) provide reference and research assistance; and
>
> (6) engage in such other activities in furtherance of the purposes of this part as he deems appropriate and the Library's resources permit.

A Board of Regents has been set up consisting of the Surgeons-General of the Public Health Service, the Army, the Navy and the Air Force, the Chief Medical Director of the Department of Medicine and Surgery of the Veterans Administration, the Assistant Director for Biological and Medical Sciences of the National Science Foundation, and the Librarian of Congress, and ten members appointed by the President, selected from leaders in the various fields of the fundamental sciences, medicine, dentistry, public health, hospital administration, pharmacology or scientific or medical library work, or in public affairs. At least six of the appointed members are to be selected from among leaders in the fields of medical, dental or public health research or education. The Board is to advise, consult with and make recommendations to the Surgeon-General on important matters of policy in regard to the library, including such matters as the acquisition of materials for the library, the scope, content and organization of the library's services, and the rules under which its materials, publications, facilities and services shall be made available to various kinds of users. An important practical section of the Act authorizes the appropriation of sums sufficient for the erection and equipment of suitable and adequate buildings and facilities for use of the library in carrying out its provisions. The concluding section of the Act is probably the most important. It states:

> All civilian personnel, equipment, library collections, other personal property, records, and unexpended balances of appropriations, allocations, and other funds (available or to be made available), which the Director of the Bureau of the Budget shall determine to relate primarily to the functions of the Armed Forces Medical Library, are hereby transferred to the Service for use in the administration and operation of this part.

The date subsequently set down for this transfer to become effective was October 1, 1956.

By this Act the Armed Forces Medical Library (known in the past successively as the Library of the Surgeon-General's Office and as the Army Medical Library) is recognized and designated as what it has in effect long been—the National Library of Medicine of the United States of America. Indeed it has long been the world's leading international library. The severance of its immediate connexion with the Armed Forces will no doubt be regretted by many, but the step has been taken only after careful consideration of the many factors involved, and is intended to enable it to make its fine facilities available to the best advantage. It is understood that steps are already being taken for the provision of a building suitably designed and large enough to house the library as it should be housed. At present its unique collection of current and recent medical literature of every kind, the largest and most comprehensive in the world, is unsuitably housed in an old building in Washington, D.C., and some of it has overflowed into nearby temporary buildings. All material published prior to 1850 (the almost priceless History of Medicine Division) is far away in a separate section in Cleveland, Ohio, to which it was moved in 1942. Despite the great difficulties inevitable in such circumstances, the staff of the library has provided a service which is known throughout the world. This, in addition to the type of service normally provided by a large library, includes the publication of catalogues, bibliographies and indexes. The *Current List of Medical Literature*, which is published monthly by the library, provides an index to some fifteen hundred of the most important medical journals of the world. This service has been built up over a period of one hundred and twenty years under the guidance of a series of notable men, the greatest of whom was undoubtedly John Shaw Billings, who controlled the destiny of the library from 1865 for

thirty years. Now, under the directorship of Lieutenant-Colonel Frank B. Rogers, it enters on an important new era. It will carry with it the good wishes of the many who have learned to appreciate the services it offers so freely and who can rest secure in the knowledge that its present director[1] regards it as "a public trust, making its resources available to all men everywhere who work close, heart and hands, to the problems of disease".

Current Comment.

SWIMMING POOL DISEASE.

A VARIETY of cutaneous infections have been reported to be spread through the warm, watery medium of the swimming pool. Warts, *molluscum contagiosum* and epidermophytosis have been blamed on this mode of spread, and infections of the ear, eye, nose and throat are apparently very common in those who frequent places of public bathing. Recently in this journal[2] attention was drawn to the fact that dirt and microorganisms tend to accumulate at the surface of a swimming pool and thus escape detection by conventional sampling techniques. Some few years ago in several published reports, S. Hellerström, of Stockholm, drew attention to a granulomatous infection of the skin acquired after an abrasion, appearing as a localized outbreak and presenting many of the signs of a local tuberculous infection and histologically resembling *lupus vulgaris*. Since then there have appeared several reports of such infections in Scandinavian and American literature. J. A. Tolmach and S. B. Frank[3] reported a similar case, but were unable to isolate the tubercle bacillus from the local granulomatous lesions. These authors suggested that the lesion could be produced by silica crystals from the material in the walls of the swimming bath, but again no crystals were demonstrated in the lesions. R. B. Rees and J. H. Bennett[4] reported nine cases of tuberculous *verrucosa cutis* in patients of whom eight used the same swimming bath. No tubercle bacilli were demonstrated in any of the lesions, and in each of four experiments guinea-pigs were not infected. The lesions healed satisfactorily under the influence of X-ray therapy or when calciferol and "Isoniazid" were used. Like several other authors, Rees and Bennett raised the possibility that the infection could be attributable to inoculation with the smegma bacillus. As suggested by a British editorial comment,[5] the lesions closely resembled those tuberculous lesions of the skin occasionally seen in such occupations as farming and butchering. The editorial suggested that the reports were clearly of importance, for tuberculous infections obtained from rivers and swimming pools might not always be cutaneous. F. Linell and A. Nordén[6] made a very extensive study of this infectious granuloma, encountered in 80 adolescents who used a school swimming pool. Usually the lesions appeared on the elbow, and in many cases there was a clear history of abrasion of the elbow on the rough concrete of the swimming pool two to three weeks before the appearance of the first papule. Healing was usually good, but frequently there was considerable scarring and some keloids were found to result. As Linell and Nordén suggested, the skin infection recalled to mind the local mycobacterial ulcerated skin infection described in a series of cases by P. MacCallum *et alii*.[7] This organism was later described as *Mycobacterium ulcerans* by F. Fenner and R. H. Leach.[8] However, it could not be isolated from the skin lesions studied by Linell and Nordén, and as most of the patients had already received BCG vaccination, the Mantoux test did not help in the investigations. Histologically, the lesions resembled tuberculous granulomata in many ways, but there were few acid-fast bacilli. Guinea-pig inoculation gave no positive results, and in three cases an acid-fast organism was grown in culture which proved to be *Mycobacterium balnei*, a stable and distinct type of Mycobacterium. Inoculation of *M. balnei* into three humans resulted in lesions similar to those of the swimming bath granulomata. Subsequently, the same organism was isolated from the swimming pool, the source of infection was never discovered, and the epidemic terminated when the swimming pool was rebuilt.

I. Zettergren and B. Zetterberg[1] have observed an outbreak of the swimming bath disease in another Swedish town in which there occurred 72 cases after visits to the public swimming pool. Again in each case an exposed area of the skin was involved, mostly the elbow. The lesions developed and healed slowly. There was minimal involvement of lymph glands, no general illness, and usually no rise in the erythroctye sedimentation rate. Isolated organisms resembled tubercle bacilli, and the organism proved pathogenic to guinea-pigs when injected into the peritoneum. The characteristics of the organism, which was also isolated in the swimming pool, identified it as the *Mycobacterium balnei* described by Linell and Nordén. In 24 cases the skin disease was intimately associated with the development of an allergic response to the tuberculin test.

It will be of particular interest to identify the organism from outbreaks in other parts of the world. If the tubercle bacillus can be definitely excluded, as indicated by the Swedish surveys, some considerable relief will be felt by public health authorities. However, there still remains the problem of preventing the swimming bath disease by reducing the risk of skin abrasions in swimming baths, and by elimination of the *Mycobacterium balnei* from their precincts.

MALIGNANT SKIN TUMOURS.

CARCINOMA of the skin has always been a subject of interest and importance in Australia because of its high incidence. In 1937, when E. H. Molesworth brought out the first edition of his book "An Introduction to Dermatology", he justified his action in "inflicting still another text book on diseases of the skin upon the medical public" by referring to the geographical distribution of certain diseases. In particular, he cited the rarity of skin tuberculosis and the commonness of skin cancer in Australia, as compared with Europe, and quoted the figures for the Adelaide Cancer Centre in 1933, when 50·1% of all cases of cancer dealt with were cancers of the skin. Appropriately enough, Molesworth devoted a substantial part of his book to these conditions, which he and other Australians have done much to conquer. Today there are few types of malignant disease in which the outlook is more encouraging, but satisfactory results will be maintained only so long as the medical profession keeps up to date on the subject. For this reason we invite attention to a comprehensive review of the subject by John C. Belisario,[2] of Sydney, who draws upon wide personal experience under Australian conditions. Various ætiological factors are discussed. The age of election is between forty-five and fifty years, but cases occur in a much wider age-range; Belisario quotes a case of squamous-cell carcinoma on the leg of a girl aged three and a half years. Men are generally more frequently affected than women, particularly on the lower lip, and it is suggested that lipstick helps to protect the feminine lip from sunlight. The direct role of heredity is doubtful, but indirectly it plays a part in providing the susceptible fair freckled complexions that go with blue or light-coloured eyes. The importance of sun-

[1] *Mil. Surgeon*, April, 1953.
[2] M. J. AUSTRALIA, August 8, 1956.
[3] *J.A.M.A.*, February 28, 1953.
[4] *J.A.M.A.*, August 22, 1953.
[5] *Brit. M. J.*, June 6, 1953.
[6] *Acta tuberc. scandinav.*, Supplement 33, 1954.
[7] *J. Path. & Bact.*, January, 1948.
[8] *Australian J. Exper. Biol. & M. Sc.*, 30:1, 1952.

[1] *Acta Soc. Med. Upsaliensis*, 61:47, 1956.
[2] *Aust. J. Dermatol.*, December, 1954.

light has long been recognized, and Belisario points out that the number of hours of exposure to sunlight is more important than the intensity of each exposure. The main predisposing factors, accounting for the high incidence in Australia, are exposure to the ultra-violet rays of the solar spectrum and lack of protective pigment in the skin of a people predominantly of British descent, assisted by the custom of sunbathing and working outdoors in shorts without a shirt. Carcinogenic wave-lengths lie between 2900 and 3341 Å; and it is thought that fair-skinned people absorb ultra-violet rays of less than 3000 Å through their skin, though they obtain some protection from a thickening of the horny layer. In dark-skinned races, pigment is present in the outer layers of the epidermis besides the basal layer, whereas in whites pigment is present almost entirely in the basal layer. Thus Negroes are found to be about ten times less sensitive to sunlight than whites as a whole; olive-skinned and yellow-skinned races occupy an intermediate position. It is not surprising then that basal-cell carcinomata are rare in dark-skinned races; but it should be noted that squamous-cell lesions and malignant melanoblastomata are not so rare. It seems clear also that skin carcinomata, brought on by exposure to sunlight over long periods, may take from ten to twenty-five years or more to develop. Various other factors also appear to play a part in individual cases, and those referred to by Belisario include arsenic, tar products in industry, X rays and radium, and various predisposing (or at any rate preceding) conditions, including *cheilitis glandularis* and certain skin manifestations associated with internal malignant disease.

The clinical manifestations of malignant skin disease are described by Belisario, together with the differential diagnosis and the histopathological features. It is not practicable here to summarize these aspects or the methods of treatment, which Belisario discusses in some detail. It is sufficient (and indeed important) to point out that in no other site do the majority of lesions respond so satisfactorily to early skilled treatment; and, as Belisario states, "not only the best results but improvement in results can be best obtained by close collaboration and co-operation between the dermatologist, the deep radiotherapist and the surgeon". These encouraging remarks unfortunately do not apply to the same degree to certain particular and less common conditions to which Belisario refers in the concluding sections of his paper—namely, malignant melanoblastoma, sarcoma and cutaneous metastases from internal malignant disease. But even here the prognosis is not always bad, and early diagnosis and adequate treatment are of great importance.

TREATMENT OF GOUT.

GOUT is one of the oldest recognized diseases to plague civilized man. It follows a curiously set clinical pattern with acute episodes of localized arthritis, with complete, if temporary, remissions, and sometimes with the appearance and extrusion of gouty tophi. Although gout is a relatively infrequent disease, its signs and symptoms are widely familiar through its frequent description in non-medical literature—the dramatic prostration of its painful nature, and its apparent predisposition to afflict the high and the mighty. The historical importance of gout has recently been mentioned in this journal.[1] Recent studies have generally confirmed the hereditary nature of the hyperuricæmia which strongly predisposes to the development of gout, and it seems reasonable to suppose that the members of affected families should be warned to avoid the apparent provocative agents of acute gouty arthritis, such as obesity and purine-rich foods. C. J. Smyth, E. R. Huffman and G. M. Wilson[2] suggest that in the treatment of acute attacks of gout, colchicine by mouth is still the treatment of choice. The patient soon learns the optimum dosage to obtain the best therapeutic results without the production of undesirable gastro-intestinal symptoms. The secret of success, they claim, is to begin early before the onset of joint symptoms. Other workers have reported that colchicine given by the intravenous route is safe, rapid and effective, and, of course, there is no gastro-intestinal upset. Demecolcine, a new alkaloid also derived from the meadow saffron, has been reported to be effective by the intravenous route in the treatment of acute gout; by mouth this drug is also effective and there are no gastro-intestinal effects. Phenylbutazone is of particular interest in the treatment of acute gout, and Smyth *et alii* report that it always produces a good response, may be given by mouth without gastro-intestinal upset, lowers the serum urate concentration, and increases the urinary excretion of urate, and, in some patients with chronic gout, permits maintenance therapy with minor joint symptoms. Pain relief occurs when the effective serum phenylbutazone level reaches 2·1 to 3·9 milligrammes per 100 millilitres, and the other signs of inflammation respond best to the intermittent administration of the drug over the subsequent three to four day period. An analogue of phenylbutazone with the butyl side chain replaced by a phenylthioethyl group may prove to be particularly effective in the treatment of gout.

Corticotropin, cortisone, hydrocortisone and prednisone all produce rapid relief in acute gout, but must be supplemented by colchicine if the symptoms are not to return when the hormone administration is discontinued. Steroid therapy should be used only if all other methods of treatment have failed.

The patient must follow a prescribed regimen between acute attacks for the rest of his life. Recent studies have cast doubt on the value of a purine-free diet, as patients with gout can synthesize uric acid from the simplest dietary constituents. However, purine foods such as liver, tongue, sardines, anchovies and meat extracts are best avoided, and meats, fish, seafoods, beans, peas and lentils should be taken in moderation. Protein should not be excessive and the diet should be low in fat content. It would seem that the frequency and severity of attacks of gout can be reduced by agents such as urate diuretics, probenicid and salicylates, which keep the total body stores of urates at a normal level. However, the dosages must be high and maintained continuously, so that few patients are prepared to accept such a regimen unless they have frequent attacks or are particularly impressed with the complications of the uncontrolled disease. Though phenylbutazone will decrease the severity and frequency of attacks in long-term administration, its use in this way is not recommended by Smyth *et alii*. When permanent arthritic changes have taken place, acute attacks are treated in the same way, but the good response is not expected to be so complete or so dramatic. Probenicid is recommended in this case, as it is effective in preventing attacks of acute gout and in relieving the chronic joint pains. By increasing the urinary excretion of uric acid, subcutaneous, articular and osseous tophi have been caused to regress. Surgical removal of tophi may be necessary. The incisions heal rapidly and recurrences of any size are rare.

[1] M. J. AUSTRALIA, March 31, 1956.
[2] *Arch. Int. Med.*, June, 1956.

ACUTE NEPHRITIS.

ACUTE GLOMERULONEPHRITIS is one of the most important of the non-infectious diseases in childhood. It is a condition from which most patients apparently make a complete recovery, and among children there are comparatively few deaths. It is allied with such conditions as acute rheumatism in that it appears to be a late response to infection, in all probability specifically by the hæmolytic streptococcus. The Type 12 hæmolytic streptococcus seems to be especially concerned in its ætiology, and C. H. Rammelkamp,[1] in a study of an epidemic of acute nephritis after hæmolytic streptococcal infection, found that only Type 12 was liable to be followed by the nephritis.

[1] *Lancet*, May 22, 1954.

Rammelkamp and R. S. Weaver[1] had earlier suggested that variations in the incidence of acute nephritis after streptococcal infection were accounted for by differences in the nephritogenic capacity of the infecting organism. In their view the Type 4 hæmolytic streptococcus was also probably active in this respect. A. R. Wetheim *et alii*[2] isolated group A hæmolytic streptococci from patients with acute nephritis and found that most of these organisms were of Type 12.

Various classifications have been made of the different manifestations of glomerulonephritis. An arrangement which has been held to be at once the simplest and the most satisfactory is that of A. Ellis.[3] His Type I nephritis is of acute onset, occurring usually after infection and mostly associated with hæmaturia and with complete recovery. His Type II nephritis has an insidious onset and usually runs a continuously progressive course. The two types have a distinct histological difference. This classification has been only slightly modified, as it is generally realized that the Type I nephritis may give way to the progressive intercapillary destructive effects of the Type II nephritis with its grave prognosis. J. Davson and R. Platt[4] in a review of 188 cases of renal disease were able to allot many of the cases according to Ellis's classification, though the differences were not always distinct, and these authors reserve judgement on whether these two types are really variations of the same disease. While R. F. Loeb[5] agrees that the Ellis classification generally suits the findings in cases of glomerular nephritis, other authors such as J. B. Enticknap and C. L. Joiner[6] suggest that the Type II nephritis has such a variety of causes and of clinical and pathological manifestations that the Ellis classification provides no useful advance on the old concept of acute, subacute and chronic nephritis. N. S. Clark[7] has reviewed the clinical records of 265 consecutive patients suffering from nephritis admitted to the Royal Aberdeen Hospital for Sick Children. Of these, 20 died in the initial illness and three have died subsequently. Of the whole series, 239 children conform closely in their condition to the Ellis classification of Type I nephritis, though five children had no hæmaturia. Of the remaining 26 children, eight conformed to the Type II nephritis of Ellis, and of these at least four appear to have made a complete recovery. In the remaining cases the condition appears to fall somewhere in between the clinical extremes of the classification, so that the concept of nephritis as divisible into two distinct pathological and clinical entities seems unjustified. Clark suggests that the two types or extremes are different expressions, rather than different stages, of the same disease process.

In a further study of 119 of the same 265 children, Clark[8] has made some interesting observations on the social factors in the ætiology of nephritis in childhood. It was found that an unduly high number of cases came from the two lower of the five standard social classes. Some bias may have been given by the desirability of admitting all the affected children from lower class homes to hospital, but Clark considers that the trend is a real one. In fact, observations of the whole series revealed that the incidence of nephritis was twice as high in urban as in rural children. This was closely paralleled by the incidence of overcrowding, and Clark suggests that this is the aspect of poverty responsible for the higher incidence of nephritis in children from poorer homes. In a further paper[9] Clark has made a follow-up study of 178 children who survived the initial attack of acute nephritis in childhood at least two years earlier. Three have died of chronic nephritis. In 14 there was evidence of latent nephritis; in eight there was active nephritis; and in 19 there was slight albuminuria without evidence of renal disease. Of the whole series examined, 75% had no abnormality present. In the diagnosis of latent nephritis support was given by the Addis counts in doubtful cases. Little correlation was found between initial severity of the signs and the final result, and though the persistence of hypertension or gross œdema beyond the first few weeks is ominous, this does not appear to preclude eventual complete recovery.

[1] *J. Clin. Invest.*, April, 1953.
[2] *Ibidem.*
[3] *Lancet*, January 17, 1942.
[4] *Quart. J. Med.*, April, 1949.
[5] "Textbook of Medicine", Cecil and Loeb; Ninth Edition; W. B. Saunders, Philadelphia and London, 1955.
[6] *Brit. M. J.*, May 9, 1953.
[7] *Arch. Dis. Childhood*, February, 1956.
[8] *Arch. Dis. Childhood*, June, 1956.
[9] *Ibidem.*

THE PHYSICIAN AND ATHLETICS.

WITH the imminence of the Olympic Games in this country it is not unnatural that some attention should be paid to the role of medicine as an important advisory service in the training of athletes and as a comforting prop and support for the athletic participants who fall by the wayside. The athletic field is, or should be, the province of scientific physical medicine. As this new science expands it will probably be found that the medical care provided for athletes is frequently inadequate. Procedures used both in training and in the treatment and rehabilitation after injury are often based on unsound principles. A good example of this is the frequency of injuries to the semilunar cartilages of the knee in highly trained football players with inadequate quadriceps muscles, and the pathetic faith in locally applied heat, massage and the crêpe bandage. A great deal of care is needed in breaking down the conservative suspicions of the role of scientific medicine in athletics. M. M. Novich[1] suggests that coaches are more concerned with the success of the team than with the health and safety of its members. Overemphasis in sports may distort a player's sense of values, and the dangers inherent in some of the rougher sports are especially obvious to medical men. The team doctor has two main functions. He must prevent injury whenever possible, and he must treat the injuries which occur so that the players achieve maximum physical restoration. The physician should be present at all sporting events where the hazard of injury is pronounced. All potential disabilities should be carefully investigated. Youths should not be prevented from participating in sport because of the presence of some functional cardiac murmur. Even youths with mild mitral insufficiency may be permitted the less energetic sports, though disease of the aortic valve should disqualify a candidate from competitive sports. Diabetic athletes should learn to anticipate episodes of hypoglycæmia produced by exercise. Participants in sports such as boxing, where the head is subjected to trauma, should be examined by electroencephalography before, during and after the sports season. Many additional accidents and fatalities could be prevented if such precautions were always taken. Boxing should not be permitted for those who are severely myopic, as a direct blow to the eye may cause retinal detachment. For other sports, contact lenses are often satisfactory, though Novich suggests that sports involve too great a risk for those with only one eye. Mouthpieces, sometimes known as gum shields, should be worn by all contestants in contact sports. Most neurological abnormalities, including epilepsy, are contraindications to competetive sports. When the physician forbids a candidate to compete in sport the reasons must be made clear. However, each case must be judged separately as humans vary so greatly in their capacity for adjustment and achievement. In most sports the poor physical condition of the players is the chief cause of injuries, the greatest number of which are experienced by individuals who are obese, awkward, considerably underweight, or ill-trained. "The athlete who is well-muscled and properly conditioned rarely requires medical treatment for injuries." The team physician should advise on proper diet and the avoidance of fatigue. Sore or weakened areas may need special protection as do the genitalia in the rougher sports. The use of local anæsthetics to render an injured area analgesic so that a player may continue in action is particularly to be condemned. All too frequently well-meaning coaches and

[1] *J.A.M.A.*, June 16, 1956.

officials cause more disability than they prevent, especially in boxing, where unskilled attempts to deal with injuries result in permanent scars, permanent disability, or even death. The physician must be prepared to stop any boxing match in which one participant seems helpless against severe punishment; the referees are sometimes unable to recognize this stage, and the physician must quickly prevent unskilled handling of the injured man and should check both boxers after a decision match. In field games the physician should not await the official summons before going to the aid of a fallen player. The older athletes over the age of thirty years should be able to decrease sensibly the physical demand on the heart by heeding the warnings of pulse rate, thirst and perspiration. "The doctor's responsibility is to further the continued improvement of techniques for safe and healthful playing."

A CATAMNESTIC INVESTIGATION OF TWINS.

ONE of the most useful methods for the study of the relationship of disease with hereditary characteristics lies in the investigation of twins. The concordance of qualities when related to uniovular and binovular twins reveals the influence of exogenic factors wholly or partially in the causation of inherent abnormalities. One of the chief difficulties in the study of twins is to make an accurate history of the individuals from birth so that environmental factors can be more completely excluded. A preliminary report has now been made by B. Harbald and M. Hauge[1] of a formidable survey undertaken for the study of all twins born in Denmark during the years from 1870 to 1910. As the survey was concerned not so much with the well-studied congenital defects, twins were not included when one or both of them died before the age of five years. Individuals were traced through various channels and, where death had already taken place, inquiries were made of the nearest living relative. In addition to information on disease, histories were gathered of the dominance of hand, the number and type of progeny, and the similarity of the twins. All disease was carefully investigated, and where possible the twins were examined by the authors and zygosity diagnosis was made by the examination of blood groups. Investigation has now been completed in the case of 1900 pairs of twins. Harvald and Hauge have been careful to calculate the rate of concordance of disease from the number of affected individuals rather than from the number of affected twins. They have also taken account of the age which an unaffected twin must reach before an abnormality can be fairly deemed unlikely to arise. Even so, a concordant history of such diseases as neurological abnormalities is made unlikely by the difficulties of rearing such children, so that an unavoidable source of error arises to reduce the numbers of affected concordant uniovular twins. Rheumatoid arthritis had no dominant concordance amongst uniovular twins, but there was considerable familial accumulation, thus emphasizing the importance of common environmental factors in the precipitation of this disease. Calculation of the position of rheumatic fever was less certain, but there was little evidence that hereditary factors play a particularly dominating part. In the case of "bronchial asthma" there was significant concordance in the uniovular twins. The number of cases of *diabetes mellitus* was relatively small, though there did appear to be some hereditary influence. Peptic ulceration was found to have both a uniovular concordance and a considerable familial accumulation; this indicates the influence of both hereditary and environmental factors in the ætiology of peptic ulceration. Heredity appeared to play a part in thyrotoxicosis, goitre and myxœdema. Pernicious anæmia was not influenced by heredity. Cardio-vascular disease displayed some concordance among the uniovular twins, but again the number of cases was relatively small. However, in the case of manifest tuberculous infection the concordance was twice as great in the uniovular as in the binovular twins, though at least part of this preponderance may be explained by the greater contact between uniovular twins. However, it was apparent that in the case of migraine there was a definite hereditary factor; less certainly there was also concordance in such diseases as prostatic hypertrophy, cataract and glaucoma. There was clear evidence of the influence of heredity in the ætiology of the manic-depressive psychosis. In the various types of malignant tumour there was no evidence of hereditary factors.

In discussing the preliminary results of their survey, Harvald and Hauge suggest that in the less common diseases only the accumulation of many more cases will enable definite conclusions to be reached, and they intend to continue this study and to analyse further the environmental factors involved. A preliminary rough estimate suggests that in the determination of the life expectancy the influence of heredity is minimal compared with environmental factors. Finally, the authors hope to investigate the influence of heredity and environment in the production of crime, a study which may well be of considerable value.

[1] *Danish M. Bull.*, August, 1956.

THE NATURE OF GASTRIC INTRINSIC FACTOR OF CASTLE.

IN 1929 Castle demonstrated that there is contained in normal gastric juice a factor, the "intrinsic factor", which when given by mouth together with a food factor, the "extrinsic factor", found in meat, was able to cause hæmatological remission in cases of pernicious anæmia. Since the discovery of vitamin B_{12} in 1948 and the demonstration that it caused remission in pernicious anæmia, either when given orally together with a source of intrinsic factor or when injected by itself, the nature of extrinsic factor has been known. It has been supposed that the function of intrinsic factor was to promote the intestinal absorption of vitamin B_{12}, but the nature of the intrinsic factor was unknown. A number of workers have produced evidence that the intrinsic factor is in some way associated with the mucoproteins of the normal gastric juice, and preparations of a high degree of activity have been prepared, but these preparations differed from worker to worker.

R. Gräsbeck[1] has summarized and examined critically the work done to date and has described a number of observations of his own. One of the matters at issue is whether the mucoprotein in the gastric juice which binds vitamin B_{12} is the intrinsic factor. By the use of electrophoretic methods of isolation the author claims that the mucoprotein binding vitamin B_{12} is the same substance as the intrinsic factor, but gives no details as to the size of the molecule or its chemical nature beyond claiming that it is mucoprotein. Purification of hog stomach preparations by different observers has yielded widely differing products with molecular weights from about 100,000 to 5000 and in chemical nature from complex mucoproteins to mucopeptides.

A. L. Latner, R. J. Merrills and L. Raine[2] have prepared a potent mucoprotein material from pig stomach which was homogeneous after paper strip electrophoresis at different pH levels as well as in the ultracentrifuge; so it may be considered at least nearly pure. This material gave a maximum clinical response in a daily dose of 1·0 milligramme with 5·0 milligrammes of cyanocobalamin. The substance is a mucoprotein and appears to have a molecular weight of about 15,000. A dose of 0·5 milligramme prevented the appearance of vitamin B_{12} in the fæces when given with radioactive cyanocobalamin. The relation between this substance with a molecular weight of about 15,000, the mucopolypeptide with a molecular weight of about 5000 isolated by Williams *et alii* and the cyanocobalamin-protein complex of 79,000 isolated by Holdsworth and Otheson is not clear. It is also not yet clear how the intrinsic factor facilitates the absorption of cyanocobalamin.

[1] *Acta med. scandinav.*, Supplement 314, 1956.
[2] *Biochem. J.*, July, 1956.

Abstracts from Medical Literature.

THERAPEUTICS.

Oral Penicillin V Therapy.

W. S. WOOD *et alii* (*Antibiotic Med. & Clin. Ther.*, June, 1956) discuss the clinical value of orally administered penicillin V. They state that orally administered penicillin is partly destroyed by acid in the gastro-intestinal tract. Phenoxymethyl penicillin showed greater acid stability than penicillin G, and gave higher serum levels. The curative and toxic effects of penicillin G and penicillin V (phenoxymethyl penicillin) were similar. One hundred patients were treated with penicillin V given orally. Fifty-four patients received tablets containing 200,000 units of the free acid phenoxymethyl penicillin, and 46 received the benzathine salt of oral phenoxymethyl penicillin in oral suspension. A dosage of 800,000 to 1,500,000 units was given daily for streptococcal throats, pneumonia, staphylococcal impetigo and acute *otitis media*. The results of treatment were said to be at least comparable to the expected effects of penicillin G. Toxic effects were negligible.

Antibiotic-Vitamin Combination.

H. M. DASKAL (*Antibiotic Med. & Clin. Ther.*, June, 1956) describes a clinical trial of oxytetracycline with stress vitamins in the treatment of infections. Stress vitamins are various vitamins of the *B* group, including B_{12} and folic acid, *plus* vitamin *C*, stated by the National Research Council in the United States of America to be necessary for recovery from infectious diseases. The antibiotic and the vitamins were provided by a drug firm. This combination of oxytetracycline and stress vitamins was given to 45 patients suffering from various infections, respiratory, renal, urethral and others. One gramme of oxytetracycline was given daily. Excellent results were obtained. However, nausea and diarrhœa were recorded in a large proportion of the cases, though these symptoms were not seriously regarded. The author's impression was that the antibiotic-vitamin combination was a valuable aid to treatment.

Severe Toxic Effects of Aminophylline.

A. C. NOLKE (*J.A.M.A.*, June 23, 1956) describes severe toxic effects from aminophylline and theophylline suppositories in children. He reports 13 cases with four deaths. The ages of the children were from five months to six years. Most were suffering from asthma. Aminophylline suppositories were given in doses of 0·25 gramme every four hours for two to twelve doses. Toxic effects occurred after two doses in 10 patients. Nausea, vomiting, dehydration, fever, restlessness, severe agitation and convulsions were observed. Three patients were given theophylline suppositories in doses of 0·12 gramme (two grains), repeated every four or six hours. Toxic effects were similar to those mentioned above, as might be expected, since aminophylline is theophylline with ethylenediamine. Post-mortem examination showed pulmonary inflammation in all four children, and ulcerative œsophagitis in two. The author discusses the toxic effects of these drugs, and points out that the toxic effects are not apparently sufficiently recognized. He mentions eight other cases of intoxication due to aminophylline suppositories reported in the last two years. He states that in these recent cases the doses of the drugs given were not unusual, though the recommended dosage was rather vague. He considers that rectal administration of theophylline or aminophylline is dangerous, and unpredictable in the result.

Novobiocin.

H. WELCH *et alii* (*Antibiotic Med. & Clin. Ther.*, June, 1956) discuss the toxic effects of novobiocin. They state that this antibiotic has been credited with 8% to 9% of skin rashes as a result of treatment. The authors gave 0·5 gramme of novobiocin twice daily to 200 adult male volunteers in a penal institution (85% coloured, 15% white). Skin rashes occurred in only one subject, while three subjects had a yellow discoloration of the scleræ. Blood concentrations of novobiocin were adequate for treatment with the dosage stated. Loose bowel actions were experienced by 37% of the patients, but administration of the drug was not stopped for this reason. The authors state that novobiocin has slight toxic effects in adequate dosage.

The Management of Pulmonary Heart Disease.

O. APPENZELLER AND W. V. BENZ (*Dis. Chest*, July, 1956) found that the commonest cause of *cor pulmonale* in patients admitted to the Royal Prince Alfred Hospital, Sydney, was emphysema, and that the patients fell into two principal groups—those admitted on account of acute broncho-pulmonary infection and those with congestive heart failure. They state that treatment with oxygen is helpful, but in their opinion it should be administered slowly at first, at a rate not exceeding three litres per minute; this is because the sudden relief of anoxæmia, the only remaining efficient stimulus to the respiratory centre, may lead to carbon dioxide narcosis. Other forms of treatment advised are vigorous antibacterial treatment, with special attention to the eradication of *Hæmophilus influenzæ*; bronchodilatation with aminophylline; liquefaction of tenacious mucus with detergent aerosols; and the use of expectorants such as potassium iodide.

Arteriosclerotic Syndromes and Niacinamide Hydroiodide.

T. M. FEINBLATT, H. M. FEINBLATT AND E. A. FERGUSON (*Med. Times*, July, 1956) state that in a series of 50 cases of arteriosclerosis the signs and symptoms which are partly reversible showed significant response after treatment for two months with parenterally administered niacinamide hydroiodide in combination with iodides. There was some alleviation of the condition in every case. The average age of the patients was sixty-one years, with an average weight of 157 pounds. Significant relief of the following symptoms was observed: vertigo, depression, disorientation, excessive fatigue, vague abdominal distress, headache, emotional instability and anorexia. The medication used was a combination of niacinamide hydroiodide with sodium iodide and niacinamide, five millilitres given twice weekly by intramuscular or slow intravenous injection. No untoward effects were observed, and there was no case of iodism. The rationale of use of this preparation depends on the close relationship between iodism and pellagra, both of which are associated with porphyrinuria and impairment of the co-enzyme mechanism. The action of niacinamide hydroiodide in prevention of iodism is the same as that of niacinamide in pellagra. Reference is made to the report of an ophthalmologist, who noted significant improvement of the retinal vessels following use of the same preparation.

NEUROLOGY AND PSYCHIATRY.

Chlorpromazine and Reserpine in Private Psychiatric Practice.

A. E. BENNETT, F. R. FORD AND R. E. TURK (*Am. J. Psychiat.*, April, 1956) state that both reserpine and chlorpromazine produce symptomatic improvement rather than alteration of the disease process. Therefore, these drugs find their main value as adjuncts to standard psychiatric therapies—that is, they produce relief of certain symptoms with better results than those obtained with sedative drugs. Chlorpromazine is of definite benefit in treatment of morphine addiction, in that it permits sudden and complete withdrawal without the appearance of withdrawal symptoms. Neither reserpine nor chlorpromazine replaces standard forms of therapy in the treatment of the usual psychiatric conditions met with in private practice, although it is possible with further experience that the duration of treatment may be shortened by a combination of standard forms of therapy and these drugs. Symptoms most frequently relieved by reserpine or chlorpromazine are anxiety, tension, schizophrenic or manic overactivity, and mild insomnia. Residual obsessional anxiety after electroshock therapy is often diminished by reserpine or chlorpromazine; this aids follow-up psychotherapy in such cases. A long period of observation in a large number of cases is necessary before an accurate evaluation can be made of the effectiveness of these drugs as adjuncts in shortening psychotherapy. When combined with psychotherapy, they may prove valuable in relieving certain symptoms, thus facilitating recovery. An impression was gained that reserpine and chlorpromazine may produce improvement in some chronic schizophrenic reactions, and may replace lobotomy in some instances. Although the side-effects are frequent, serious toxicity is rare. Neither drug, however, is without danger, nor should they be dispensed indiscriminately. Neither reserpine nor chlorpromazine potentiates usual doses of barbiturates or curare or complicates

electroshock therapy or sub-coma or deep coma insulin therapy. Both reserpine and chlorpromazine can be considered useful adjuncts to standard forms of psychiatric therapy in private psychiatric practice.

Diagnosis and Treatment of the Phobic Reaction.

W. I. TUCKER (*Am. J. Psychiat.*, April, 1956) states that some phobic reactions with anxiety and somatic symptoms are associated with hysterical and obsessive and compulsive tendencies. These reactions occur in immature people who do not seem able to become adjusted to responsibility and stress. This condition needs directive rather than non-directive treatment. The condition is more common in young wives and mothers, is more frequent in married than single women, and is more frequent in women than men. Hyperventilation is common and sometimes can be controlled by the realization of its means of production. The patient is often full of fears of serious disease or of an "attack" or "collapse", in spite of the fact that none of these have occurred. The childhood background is one of insecurity, often attributed to parental strife, lack of affection, over-protection and over-criticism by parents. The attitude towards marriage, sex and children is frequently immature and romantic. Some patients seek marriage to avoid tensions at home. Conflict of loyalties may arise between husband and parents or children. Treatment is by reassurance and explanation, limitation of stress and encouragement to greater activity. The environment is controlled until such time as the adjustment has improved and emotional maturity has developed.

Psychotherapy of the Suicidal Patient.

L. M. MOSS AND D. M. HAMILTON (*Am. J. Psychiat.*, April, 1956) analysed the case histories of 50 suicidal patients. These included those in all diagnostic categories of mental illness—psychoneuroses 22%, manic depressive 38%, schizophrenia 22%. The suicidal schizophrenia was associated with ambivalent and bizarre features. In each instance there were three determinants apparently important in these suicides: first, a promise of hope—to be reunited in death; second, hostility towards some persons important to them; third, an expression of hopelessness and frustration. There was no characteristic conflict that appeared to give rise to suicidal tendencies. An outstanding feature was "the death trend"—that is, death under tragic circumstances of individuals closely related to the patient. In three-quarters of the cases this occurred prior to the completion of adolescence, and in the other quarter it precipitated the illness. In 60% of cases the patient had lost one or both parents in early life. Suicide in the immediate family was found in 25%. Therapy involves three phases: active, convalescent and recovery. The active phase requires adequate protection and perhaps electric shock therapy. The explanation is given that suicide is an attempt to overcome an overwhelming problem for which other solutions may be discovered. During the convalescent phase attempts are made to resolve the problems involved in the precipitating situation. Associated with this stage is the "flight into reality"—that is, to return to the previous environment without adequate psychotherapy. The recovery phase is recognized when the patient is in contact with the original environment. In 90% of cases there is a reactivation for a time of symptoms of some degree which involves some risk. Success of treatment was attributed to intervention in the home environment, in addition to helping relatives gain insight into feelings of hostility and rejection. For recovery a major change was needed in one or more situations concerned with occupation, and domestic, interpersonal and psychosexual adjustment.

Apractognosia Due to Lesions of the Minor Cerebral Hemisphere.

H. HECAEN, W. PENFIELD, C. BERTRAND AND R. MALMO (*Arch. Neurol. & Psychiat.*, April, 1956) make a detailed study of 17 patients, 15 of whom had had excisions in the right hemisphere in right-handed persons and two on the left side in left-handed persons. This investigation dealt with the minor parietal (non-dominant) or parieto-temporo-occipital syndrome. The syndrome is manifested in the following ways: (i) Body scheme disturbances—for example, denial of a left hemiplegia, a lack of awareness of the half body, a feeling of strangeness and motor hemiaspontaneity. (ii) Apraxia for dressing. (iii) Visuoconstructive disabilities (frequently associated with apraxia for dressing). They appear if an element of perspective is introduced into drawing tests. Inability to reproduce tridimensional pattern, even when the pattern is at hand, seems to be characteristic of visuoconstructive apraxia. (iv) Disorders of "spacial thought"—loss of conception of topographical relationship such as the inability to draw a diagram or a geographical map or to orientate oneself on a map. This may include loss of topographical memory. (v) Optico-vestibular disturbances, including metamorphopsias, sensations of vertigo, inability to write in a straight line, obliquity of drawings, distortions of the subjective horizontal and vertical lines. The authors found the syndrome to be present in varying degrees in nine of the patients who had undergone cortical ablations to stop focal epilepsy. In these cases the parieto-temporal-occipital region was involved—the supramarginal gyrus, part of the angular gyrus and the posterior part of the first temporal convolution. The wealth of the syndrome seems to increase with the greater size of removal in this zone. Lesions of the temporo-parietal cortex between the visual, proprioceptive and vestibular sensory areas may produce somatognostic manifestations. The apractognosic symptoms vary if the lesion extends more anteriorly or posteriorly. The defects produced by lesions in these areas are defects of perception and of interpretation. There is a strange difference between the functions of the two parietal lobes. A lesion in the parietal areas of the dominant hemisphere produces bilateral body-scheme disorders, either localized to the fingers (finger agnosia) or generalized (autotopagnosia), whereas a lesion in the minor parietal area disturbs the body-scheme unilaterally.

Palatal Myoclonus.

M. NATHANSON (*Arch. Neur. & Psychiat.*, March, 1956) makes some observations on 12 cases of palatal myoclonus, in four of which the patient died. He states that myoclonic movements of the palate and related structures, once they occur, persist with no definite change in rate or character for the rest of the subject's life. They are not influenced by natural sleep, phonation, induced sleep (by the intravenous use of barbiturates), carotid sinus pressure, caloric stimulation or coma. In three cases full post-mortem studies were performed, which gave strong evidence that the major and primary lesion was in the cerebellum, with most destructon around the dentate nucleus. This was associated with demyelination in the opposite inferior olive. In two of these cases the cerebellar lesion was neoplastic.

Neuritis Associated with Systemic Lupus Erythematosus.

A. A. BAILEY, G. P. SAYRE AND E. C. CLARK (*Arch. Neurol. & Psychiat.*, March, 1956) state that recent studies have indicated that permanent or transient involvement of any part of the nervous system may occur at any time during the course of systemic *lupus erythematosus*. They report five cases. In two there was clinical evidence of widespread involvement of the central nervous system. The neurological signs combined with low cell counts and raised total protein levels in these two cases were consistent with Guillain-Barré syndrome. In addition to multiple neuritis or mononeuritis four of the patients had other signs such as diplopia, nystagmus, anxiety and convulsions. In two cases on autopsy there was focal degeneration of the peripheral nerves and posterior ganglia with secondary degeneration of the posterior columns. The authors refer to the conclusion of Heptinstall and Sowry that the peripheral neuritis is due to ischæmia resulting from vascular lesions in the vessels supplying the nerves. Their own view is that vascular changes by themselves do not account for the presence of the neuritis in all cases.

Effect of Isoniazid in Multiple Sclerosis.

L. P. HINTERBUCHNER, M. G. GOLDNER, J. B. ROGOFF AND A. M. RABINER (*Arch. Neurol. & Psychiat.*, February, 1956) conducted a small trial in which 11 patients suffering from chronic multiple sclerosis were given 300 milligrammes of isoniazid daily for three months, and 14 were given a placebo. Improvement was judged on muscle power, activities of daily living and range of active movement at all joints. Slight to moderate improvement occurred in only three patients and these were in the group receiving the placebo. The authors conclude that isoniazid does not seem to influence the course of patients who have had multiple sclerosis for a prolonged period of time.

British Medical Association News.

SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held on October 15, 1955, at Geelong.

Dissecting Aneurysms.

DR. V. D. PLUECKHAHN (Geelong) read a paper entitled "Dissecting Aneurysms" (see page 674).

DR. T. H. HURLEY (Melbourne) said that the percentage of ante-mortem diagnoses in Dr. Plueckhahn's series was unusually high. Patients presented with severe chest pain, and if that pain radiated to the back dissecting aneurysm should be suspected, especially if there was an aortic diastolic murmur which had not been present before the onset. Another aid to diagnosis was the presence of a hæmothorax after an attack of severe chest pain which, for some unknown reason, occurred more often on the left than on the right side. The development of hæmopericardium was frequently a terminal event in such cases.

DR. L. ROTHSTADT (Melbourne) said that cases of dissecting aneurysm were difficult to distinguish from cases of coronary occlusion and were usually diagnosed as such, and while X-ray examination of the chest might reveal a widened aorta, there was usually no standard of comparison to enable the condition before onset to be determined.

DR. JOHN AGAR (Geelong) said that in two of Dr. Plueckhahn's cases the electrocardiogram was normal, but that still did not solve the problem of distinguishing between cases of dissecting aneurysm and infarction, as in the latter condition the electrocardiogram could be normal.

DR. D. WALLACE (Geelong) said that he had seen two patients with dissecting aneurysm in the previous twelve months. The first, a man in his sixties, developed sudden pain in the right hypochondrium, with shock. Although the symptoms resembled those of an acute gall-bladder attack, a surgical consultant considered that the patient had a dissecting aneurysm, which was confirmed *post mortem* one week after the onset. The second patient was also a man in his sixties, who complained of pain between the shoulders followed by paralysis of the lower limbs, which resolved after a fortnight, but recurred when the man was allowed out of bed. The patient recovered with further rest, and as no other cause could be found for his paralysis, it was concluded that he had suffered from a dissecting aneurysm.

DR. E. S. R. HUGHES (Melbourne) said that in the past five years he had operated on five patients with dissecting aneurysm presenting as an acute abdominal emergency. Four of the patients died within twelve to twenty-four hours, one surviving for a few days. Dr. Hughes further said that recently he had examined a male patient, aged sixty-five years, complaining of pain in the left iliac fossa of forty-eight hours' duration. The pre-operative diagnosis was diverticulitis with abscess, and at operation a pulsating retroperitoneal hæmatoma was found. The abdomen was closed and the patient was transferred from a private hospital to the Royal Melbourne Hospital. That night the abdomen was reopened through a long paramedian incision and the descending colon was reflected to the mid-line. By careful dissection the aorta was exposed above the lesion and clamped just below the pancreas. Dissection was then carried out down to Poupart's ligament, and both iliac arteries were dissected out. A new aorta and new iliac arteries were then grafted in position, the operation taking seven hours, with some twelve surgeons assisting; but the patient died a few hours later. Dr. Hughes wondered whether there was a place for surgery in such cases. He thought that if an early diagnosis could be made, an odd patient might be saved.

DR. DESMOND HURLEY (Melbourne) said that more interest was centred on saccular aneurysm. At the Mayo Clinic the aneurysm was opened after the artery had been clamped, an oval section was removed and the edges were brought together so that the lumen was narrowed. The artery was then surrounded by a plastic sponge ("Ivalon"), into which connective tissue ultimately grew, and "Orlon" material could also be used.

Dr. Plueckhahn, in reply, said that in over 2000 autopsies 21 dissecting aneurysms had been encountered, in 19 of which the aneurysm was the cause of death. In the remaining two spontaneous cure had occurred, death being due to other causes. The figures showed that in the series there was a 10% natural recovery rate.

The Mortality of Small Bowel Obstruction.

DR. CHARLES GALE (Geelong) read a paper entitled "Factors Affecting the Mortality of Small Bowel Obstruction" (see page 669).

DR. DESMOND HURLEY (Melbourne) said that not many used the Miller-Abbott tube as often as Dr. Gale, one reason being that the tube was difficult to pass, particularly through the nose. Positioning after introduction of the tube was important, and the patient should be turned on the right side and slightly on the face. Constant attention to such patients was needed, and the medical officer should see them every five to ten minutes. Half an hour after the passage of the tube a plain X-ray film should be taken, as the tube might be coiled in the fundus and several attempts might be needed to pass it through the pylorus. Dr. Hurley considered that the dangers of the Miller-Abbott tube were greater than those Dr. Gale had stressed, and he had encountered two cases of fatal peritonitis after perforation of the caecum by the tube. He considered the tube a good friend but a dangerous enemy.

DR. LEONARD BALL (Melbourne) said that he considered the most important thing in intestinal obstruction was not decompression, but electrolytic balance. His difficulty with the Miller-Abbott tube was passing it through the duodenum, and it would not go through in acute obstruction, as the bowel was not contracting. If the abdomen was opened and the gut was distended, then he did not hesitate to aspirate the gut with a sucker, if necessary more than once, and then, when the gut was empty, the obstruction could be readily found. What he advocated might be regarded as heresy, but it was effective, the aspiration perforations being closed with purse-string sutures.

DR. CHARLES OSBORN (Melbourne) said that at Saint Vincent's Hospital, Melbourne, the Miller-Abbott tube had been used only intermittently because of the difficulty of passing it, and he would like to know the secret of successful passage.

Dr. Gale, in reply, said that if there was difficulty in passing the bag through the nose, he passed the tube without the bag and then attached the bag after the tube had been brought through the mouth. The bag did not need to be large, and he rolled it like an umbrella for passage through the nose. The tube was inclined to lodge in the fundus of the stomach, which was atonic, and he passed enough tube in so that it was neither too short nor too long, and once it was within peristaltic grasp it would go through. He advocated the use of the tube for short periods only, and if in doubt he operated. He agreed that the use of the tube demanded a lot of attention which some people were not prepared to give.

SIR CHARLES HASTINGS AND CHARLES OLIVER HAWTHORNE CLINICAL PRIZES, 1957.

THE Sir Charles Hastings Clinical Prize Competition was established by the British Medical Association for the promotion of systematic observation, research and record in general practice. The competition has been extended by the addition of a second prize known as the Charles Oliver Hawthorn Clinical Prize. The following are the regulations governing the awards:

1. The Sir Charles Hastings Clinical Prize, consisting of a certificate and £75, will be awarded for the best entry.

2. The Charles Oliver Hawthorne Clinical Prize, consisting of a certificate and £50, will be awarded for the second best entry.

3. Any member of the Association who is engaged in general practice is eligible to compete for these prizes.

4. The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no work entered is of sufficient merit no award will be made. Candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations and their conclusions.

5. Essays, or whatever form the candidate desires his work to take, must be sent to the Secretary, British Medical

Association, British Medical Association House, Tavistock Square, London, W.C.1, not later than December 31, 1956.

6. A prizewinner in any year is eligible for an award of either of the prizes in any subsequent year. A study or essay that has been published in the medical Press or elsewhere will not be considered eligible for a prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work.

7. If any question arises in reference to the eligibility of the candidate or the admissibility of his or her entry, the decision of the Council on any such point shall be final.

8. Preliminary notice of entry for this competition is required, on a form of application to be obtained from the Secretary.

9. Each entry, which should be unsigned, must be typewritten or printed on one side of the paper only and accompanied by a note of the candidate's name and address.

10. No definite limits are laid down as to the length of the work submitted, but the Council anticipates that for this competition 3000 to 10,000 words would be suitable.

11. Inquiries relative to the prizes should be addressed to the Secretary.

KATHERINE BISHOP HARMAN PRIZE.

THE Council of the British Medical Association is prepared to consider an award of the Katherine Bishop Harmon Prize in the year 1957. The value of the prize is £75.

The purpose of the prize, founded in 1926, is the encouragement of study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child-bearing. It will be awarded for the best contribution submitted in open competition, competitors being left free to select the work they wish to present, provided this falls within the scope of the prize.

The following are eligible to compete: (*a*) any registered medical practitioner in the British Commonwealth and Empire or the Republic of Ireland; (*b*) any member of the British Medical Association, wherever resident.

Should the Council of the Association decide that no contribution submitted is of sufficient merit, the prize will not be awarded in 1957, but will be offered again in the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine. The decision of the Council will be final.

Each contribution must be typewritten or printed in the English language, and must be accompanied by a detachable slip bearing the candidate's name and address. The Council anticipates that contributions should be between 3000 and 10,000 words, although no definite limits are laid down.

Preliminary notice of entry is required and a form for this purpose can be obtained from the Secretary. Entries must be forwarded so as to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than December 31, 1956. Inquiries relative to the prize should be addressed to the Secretary.

PRIZE ESSAY COMPETITION FOR PROVISIONALLY REGISTERED PRACTITIONERS, 1957.

THE Council of the British Medical Association is prepared to consider the award, in 1957, of prizes to provisionally registered practitioners for essays submitted in open competition.

The subject of the essay is "Medicine is an Art as Well as a Science".

In awarding the prizes due regard will be given to evidence of personal observation and experience. No study or essay that has previously appeared in the medical Press or elsewhere will be considered eligible for a prize.

Any provisionally registered practitioner in the pre-registration year at the time of submission of the essay is eligible to compete for a prize.

If any question arises in reference to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. Should the Council decide that no essay entered is of sufficient merit, no award will be made.

At least one prize of £50 is offered. In determining the number of prizes to be awarded, the Council will take into consideration the number and standard of essays received.

Essays must not exceed 5000 words, and must be typewritten or legibly written in the English language on foolscap paper (one side only), must be unsigned and must be accompanied by a note of the name and address of the entrant. Notice of entry for this competition is necessary, and a form of application can be obtained from the Secretary of the British Medical Association.

Essays must be forwarded so as to reach the Secretary not later than January 31, 1957.

Inquiries relative to the competition should be addressed to the Secretary, British Medical Association, British Medical Association House, Tavistock Square, London, W.C.1.

PRIZE ESSAY COMPETITION FOR MEDICAL STUDENTS, 1957.

THE Council of the British Medical Association is prepared to consider the award, in 1957, of prizes to medical students for essays submitted in open competition.

The subject of the essay is "The Medical Student and Research: Past Achievements and Present Opportunities".

Any medical student who is a registered member of a medical school in the United Kingdom, Commonwealth and Empire or the Republic of Ireland at the time of submission of the essay is eligible to compete for a prize.

Previous prizewinners are eligible for a second award.

If any question arises in reference to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. Should the Council decide that no essay entered is of sufficient merit, no award will be made.

The prizes offered will normally be of the value of £25, but, in determining the number and exact amount of prizes to be awarded, the number and standard of essays received will be taken into consideration by the Council, which reserves the right to vary the number and amount of the prizes.

Essays must not exceed 5000 words, and must be typewritten or legibly written in the English language on foolscap paper (on one side only), must be unsigned, and must be accompanied by a note of the name and the medical school of the entrant. Notice of entry for this competition is necessary, and a form of application can be obtained from the Secretary of the British Medical Association.

Essays must be forwarded so as to reach the Secretary not later than January 31, 1957.

Inquiries relative to the competition should be addressed to the Secretary, British Medical Association, British Medical Association House, Tavistock Square, London, W.C.1.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

INJUSTICE TO MR. D'ARCY WENTWORTH.[1]

[Viscount Castlereagh to Governor Bligh.]
From "Historical Records of Australia".

Downing Street,
15 May, 1809.

Sir,

In your letter of 31st October 1807 you state that you had suspended Mr. D'arcy Wentworth from his situation upon account of his having been guilty of an Impropriety in retaining Convicts upon the Hospital List in order to work his Grounds and Garden when they ought to have

[1] From the original in the Mitchell Library, Sydney.

been discharged; and you inclose two affidavits[1] on this Matter as a Justification of your Conduct and as a Ground for receiving thereupon the Decision of His Majesty's Ministers. Upon this Conduct, if the Convulsion which has happened had not taken place, I intended to have conveyed to you my Sentiments and I now think it my Duty to express my Disapprobation of it. The Charge against Mr. Wentworth was for Impropriety and Fraud in retaining Convicts upon the Hospital List with a view to his own Benefit. Surely this was a charge which ought to have been brought immediately before the Tribunal of the Colony where alone Mr. Wentworth could have had an opportunity of defending himself; instead of which, without stating to him his offence, without stating to him the charges upon which you suspend him, you transmit his accusation hither, expecting His Majesty's Ministers will form a decision in a mere case of Misdemeanour, without hearing the accused Person in his Defence and at the same time knowing that the accused had been kept in ignorance of his alleged Crime and prevented the Means of proving his Innocence. You must be sensible, from what I have thus stated that your suspension of Mr. Wentworth on such a Charge, and your concealing from him the nature of it, and your declining to bring him to trial in the Colony, is not reconcileable with the Principles of British Justice and you would have received orders to restore Mr. D'arcy Wentworth to his Situation if the Convulsion which has arisen in the Colony had not taken place.

I have &c.,

CASTLEREAGH.

Correspondence.

AN APPOINTMENT IN ANTARCTICA.

SIR: A notice circulated to all members of the New South Wales Branch, advertising the vacancy for a medical officer to the 1957 Australian National Antarctic Research Expedition to Mawson, carries these words: "Appendectomy essential prior to sailing."

As it stands, this announcement is ethically improper. No person should be required as a condition of their employment to undergo an operation for the removal of an organ which is not in fact diseased, or the cause of disease. A desire to safeguard against the remote dangers of illness, even in circumstances which would constitute a grave hazard to the person, inconvenience, risk and heavy cost to others, does not justify a compulsory mutilation of the body with exposure to the risk of anæsthesia and operation, however slight these may now be. Whether for the benefit of a harem or a scientific expedition, it is morally wrong to demand such an operation, to perform it or to permit its performance.

No objection could be taken, however, to an announcement that the selection would be made from those who have already had their appendix removed. A candidate who underwent the operation solely to get the job should be considered as having insufficient regard for the sanctity of his own body to justify his being given charge over those of others.

Yours, etc.,

DOUGLAS VANN.

Berridale,
New South Wales,
October 17, 1956.

[This matter was brought before the last meeting of the Federal Council, which took the view that only those who had had their appendices removed would be considered for appointment. The Federal Council therefore took no exception to the advertisement.—EDITOR.]

THE TEACHING OF ANATOMY.

SIR: Dr. Scott Charlton's letter in your issue of October 13, 1956, serves to draw one's attention not so much to the teaching of anatomy, but to the medical curriculum as a whole: the time must be very nearly ripe for a reassessment of the undergraduate course.

[1]From Francis Oakes, Chief Constable, and George Beldon, overseer of the gangs at Parramatta.

In respect of the content of Dr. Charlton's letter several matters require comment. Firstly, I do not agree that because a student has forgotten much of his anatomy by the time he graduates, then *ipso facto* the hard work of second and third years is wasted. Admittedly details and minutiæ are forgotten, but the basic principles and foundations are still present to form a basis upon which a profound knowledge of anatomy is rebuilt. That this is true is borne out by the content of Dr. Douglas Miller's letter which appeared in the same issue of your journal.

Dr. Charlton suggests revision classes in anatomy during the clinical years, but when can these classes be held? He admits that the "student has forgotten his anatomy because of the anxiety and pressure of all the other subjects which he has to learn".

Most interested in medical education agree that the medical curriculum has expanded tremendously in the last ten or fifteen years, and a halt must be called; a stage may soon be reached where a certain amount of pruning may be necessary.

Without wishing to appear parochial I would like to suggest that if any subject in the undergraduate course should be given additional time when the revision of the course is contemplated, then that subject is ophthalmology; for almost more than any other specialty it touches upon neurology, medicine and surgery, and in general practice the doctor is constantly confronted with ophthalmic problems not necessarily to be dealt with by himself, but the diagnosis and observation of which is important.

Finally, if students wish to keep their anatomy fresh against the day when they may sit for a higher surgical degree (and remember most students enter general practice), then let them revise in their own time, if such they have, and not inflict more anatomy on already overburdened students who are to become general practitioners, and so perhaps add more "wasted time" to that which Dr. Charlton states they "wasted" in their pre-clinical years.

Yours, etc.,

R. HERTZBERG.

9 Butler's Road,
Hurstville,
New South Wales.
October 16, 1956.

Post-Graduate Work.

TRAINING IN PSYCHIATRY AT McGILL UNIVERSITY.

THE Department of Psychiatry, McGill University, Montreal, has a limited number of openings for training, and applications are now being considered. Applicants must have graduated from an approved medical school and have had a general internship of one year.

The four-year diploma course provides general basic preparation during the first two years. The last two years provide special patterns of instruction for those (*a*) planning to enter the field of general hospital, community or university psychiatry, (*b*) preparing themselves for a career in child psychiatry, and (*c*) intending to enter the field of research psychiatry. Credit may be allowed for previous training. Shorter periods of instruction may be arranged, as well as instruction in special fields.

Full training in psychoanalysis also may be undertaken within the Department of Psychiatry by suitably prepared candidates. Separate application for this training is required.

All those accepted for training are assigned to one of the seven teaching centres in Montreal. These positions carry with them board and lodging, or, in lieu of lodging, a living-out allowance together with an honorarium ranging from $40 to $100 a month, depending upon the clinical position to which the applicant is assigned. For those in the advanced years of the course, clinical positions carrying higher salaries are available. In several centres, additional emoluments of $1800 a year are available, mainly in the form of bursaries, these being issued under certain conditions in regard to which information will be given on request.

Applicants should write to the Chairman of the Department of Psychiatry, McGill University, Montreal, Canada.

Congresses.

HARVEY TERCENTENARY CONGRESS.

AN international scientific congress will be held at the Royal College of Surgeons, London, from June 3 to 7, 1957, to mark the tercentenary of the death of William Harvey, the discoverer of the circulation of the blood. The congress will be devoted to discussions on various scientific aspects of the circulation, and it will have a wide appeal to medical men and scientists of different disciplines. The principal participants will be men of international standing. At the conclusion of the congress a visit will be paid to Harvey's birth place at Folkestone. Further information about the congress may be obtained from the honorary secretary, Dr. D. Geraint James, 11 Chandos Street, Cavendish Square, London, W.1.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following additions and amendments have been made to the Register of Medical Practitioners for New South Wales in accordance with the *Medical Practitioners Act*, 1938-1955:

Registered medical practitioner who has complied with the requirements of Section 17 (3) and is registered under Section 17 (1) (*a*) of the Act: Smith, Alexander Tait, M.B., B.S., 1940 (Univ. Melbourne), M.D., 1946 (Univ. Melbourne), M.R.A.C.P., 1946.

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1) (*b*) of the Act: Endelman, Adolf Andrzej, L.L.M., R.C.P. (Ireland), L.L.M., R.C.S. (Ireland), 1954; Lynch, George Martin Anthony, M.B., Ch.B., 1944 (Univ. Glasgow); Shlom, Louis, M.B., B.Ch., 1932 (Univ. Witwatersrand).

TASMANIA.

THE following have been registered, pursuant to the provisions of the *Medical Act*, 1918, of Tasmania, as duly qualified medical practitioners: Manoim, Louis, M.B., B.Ch., 1947 (Univ. Witwatersrand), D.C.P., 1954; Peeke, Ronald Keith, M.B., B.S., 1951 (Univ. Melbourne).

The following additional qualification has been registered: Sherrey, John Harold, F.R.C.P. & S. (Canada).

Notice.

ROYAL PRINCE ALFRED HOSPITAL.

Lecture and Film on Super-Voltage Therapy.

DR. W. ROY WARD, the senior radiotherapist of the Mount Vernon Hospital, London, will give a lecture in the Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital, Sydney, on Wednesday, November 28, 1956, at 8.30 p.m. Dr. Ward will show a motion picture film on super-voltage therapy, and, after the showing of the film, will address the meeting. Members of the medical profession are cordially invited to attend this lecture.

LECTURE BY DR. HOWARD A. RUSK.

DR. HOWARD A. RUSK, Professor of Physical Medicine and Rehabilitation at New York University, President of the International Society for the Welfare of Cripples, Consultant on Rehabilitation to the United Nations, and Associate Editor of the *New York Times*, will speak on "Rehabilitation of the Physically Handicapped: Its Medical, Social and Economic Significance" at Nicholas Hall, 148 Lonsdale Street, Mel-

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED OCTOBER 13, 1956.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	5(2)	5(5)	..	..	..	2	..	12
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	1	..	..	..	..	..	61	..	62
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	1(1)	..	..	..	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	6(5)	12	1(1)	..	..	..	3	1	23
Diphtheria	..	..	..	..	6(5)	..	..	..	6
Dysentery (Bacillary)	..	..	1	..	2(1)	..	1	..	4
Encephalitis	..	..	..	..	..	..	..	..	..
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	1	..	..	..	..	1
Infective Hepatitis	75(23)	37(20)	..	23(11)	..	6	..	1	142
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	3	..	..	..	3
Leptospirosis	..	..	1	..	..	..	2	..	3
Malaria	..	2(2)	..	..	..	..	3	..	5
Meningococcal Infection	..	2(2)	..	..	..	..	..	..	2
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	1	..	3	4(3)	..	..	..	..	8
Puerperal Fever	1(1)	..	..	..	..	..	..	..	1
Rubella	..	78(40)	..	28(10)	3(3)	..	3	..	112
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	10(8)	13(7)	7(3)	6(4)	..	..	..	3	39
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1	..	..	..	..	..	1
Trachoma	..	..	..	..	3	..	6	..	9
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	31(23)	14(12)	22(9)	3(3)	10(4)	1(1)	..	..	81
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

bourne, on Thursday, November 8, 1956, at 8 p.m. This lecture is sponsored by the Department of Social Services. All members of the medical profession are invited.

TRADE EXHIBIT AT ROYAL NEWCASTLE HOSPITAL.

A TRADE EXHIBIT is being held at Royal Newcastle Hospital from November 14 to 16, 1956, in conjunction with the annual meeting of the Dermatological Association of Australia. The President and members and the Superintendent of the Royal Newcastle Hospital extend an invitation to all practitioners in Newcastle and the Newcastle area to view this exhibit, at which a wide range of pharmaceuticals and equipment (including photographic equipment) will be displayed. This will embrace products used in all branches of medicine. The exhibit will be housed in the Wilfred Nickson Wing of the Royal Newcastle Hospital. Visitors are requested to enter via the main door to this wing, which faces on to Shortland Esplanade. The exhibit will be situated immediately inside this door. The display will be open on Wednesday, November 14, and Thursday, November 15, from 10 a.m. to 5.30 p.m., and from 7 p.m. to 8.30 p.m., and on Friday, November 16, from 10 a.m. to 3.30 p.m. Individual invitations with entrée cards will be sent to all practitioners in the Newcastle area in the week prior to the meeting. Any doctor who does not receive an invitation by Friday, November 9, and who wishes to attend, is asked to telephone Dr. W. H. Ward (B 1549), 17 Bolton Street, Newcastle.

NEWCASTLE DOCTORS' SUPERANNUATION FUND.

WE have received the following communication from the trustees of the Newcastle Doctors' Superannuation Fund.

The response to the recent circular issued on behalf of the above fund by courtesy of the Australian Fixed Trusts has been so overwhelming that the trustees have been obliged to alter their previously anticipated method of reply. It has now been decided to have copies of the Deed of Trust printed and forward a copy to every doctor who has asked for information *re* the fund. This will be done as expeditiously as possible, but will necessarily take a week or two. All inquiries will therefore be answered as soon as possible.

For and on behalf of the trustees,

DR. A. J. OSTINGA,
DR. O. J. ELLIS,
DR. R. LINDSAY.

Medical Practice.

NATIONAL HEALTH ACT.

THE following notice appeared in the *Commonwealth of Australia Gazette*, Number 60, of October 18, 1956.

NATIONAL HEALTH ACT, 1953-1956.

Part VII: Pharmaceutical Benefits.

Revocation of Authority of Medical Practitioner.

I, Donald Alastair Cameron, the Minister of State for Health, in pursuance of section 134a of the *National Health Act* 1953-1956 hereby give notice that following investigation and report by the Medical Services Committee of Inquiry for the State of Tasmania, and in pursuance of the powers conferred by sub-section (7) of section 95 of the said Act, I have revoked the authority of Patrick James Francis Nally of 127 Main Road, Moonah, Tasmania, medical practitioner, under section 88 of the said Act to write a prescription for the supply of pharmaceutical benefits and under section 93 of the said Act to supply pharmaceutical benefits, for the reason that I am satisfied that the said Patrick James Francis Nally has been guilty of conduct which is an abuse of the said authorities and of the National Health (Pharmaceutical Benefits) Regulations.

Dated this 3rd day of October, 1956.

DONALD A. CAMERON,
Minister of State for Health.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Currie, Roger Audley Dalglish, M.B., B.S., 1955 (Univ. Sydney), Balmain and District Hospital, Balmain, New South Wales.

Royle, Richard Arthur, M.B., B.S., 1947 (Univ. Sydney), Repatriation General Hospital, Concord, New South Wales.

Medical Appointments.

Under the provisions of the *Quarantine Act*, 1908-1950, Dr. Alan Joshua Beaumont and Dr. Samuel Charles Shakespear Cooke have been appointed as Quarantine Officers at Geraldton and Carnarvon, Western Australia, respectively.

Dr. Alan Bell has been appointed Director of Industrial Hygiene, Department of Public Health, New South Wales.

Dr. W. G. Tellesson has been appointed Surgical Registrar, State Hospitals and Homes, Department of Public Health, New South Wales.

Diary for the Month.

Nov. 6.—New South Wales Branch, B.M.A.: Organization and Science Committee.
Nov. 7.—Western Australian Branch, B.M.A.: Branch Council.
Nov. 9.—Tasmanian Branch, B.M.A.: Branch Council.
Nov. 9.—Queensland Branch, B.M.A.: Council Meeting.
Nov. 12.—Western Australian Branch, B.M.A.: General Meeting.
Nov. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
Nov. 14.—Victorian Branch, B.M.A.: Branch Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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